

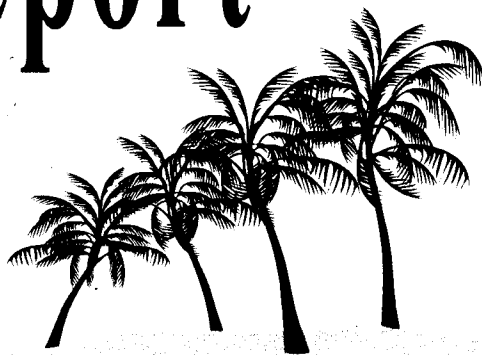
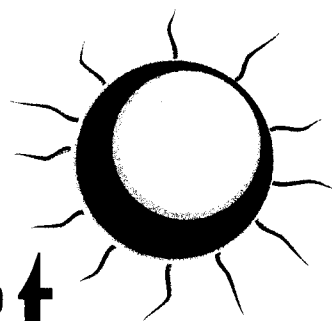
MARFIN

Marine Fisheries Initiative



2000

Annual Report



National Marine Fisheries Service
Southeast Region

Marine Fisheries Initiative Program

(MARFIN)

2000 ANNUAL REPORT

January 1 to December 31, 2000

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PREFACE

The Marine Fisheries Initiative (MARFIN) promotes and endorses programs which seek to optimize economic and social benefits from marine fishery resources through cooperative efforts that evoke the best research and management talents of the Southeast Region. Preference is given to cooperative planning efforts with up to 3-year time horizons. The intent is to focus projects funded by MARFIN into cooperative efforts that provide clear answers for fishery needs covered by the NMFS Strategic Plan¹. Goals one, two and four are particularly important. For example, a geographically restricted age and growth study of a local fishery resource is of limited value unless it is coordinated with, or verified by, similar studies which span the range of the resource. The value of such studies is also relatively limited unless the results can be combined with other studies to provide a regional assessment of the resource. MARFIN provides this necessary programmatic integration through cooperative planning, accomplishment of program activities and an annual MARFIN Conference.

The MARFIN program was created to bring together scientific, technical, industry, resource conservation and management talents to conduct cooperative programs to facilitate and enhance the management of the marine fishery resources of the Gulf of Mexico and South Atlantic. MARFIN requires the timely dissemination of the results of both successful and unsuccessful efforts, therefore each recipient of funding under this program is obligated to attend a MARFIN conference to report project findings. The bycatch issue remains a focal point of research needs for the Southeast Region. Critical reef fish fisheries are also being addressed, from efforts to reduce catches associated with shrimp trawls to life history studies, as well as fishery-dependent and independent characterization work. Delineation of king mackerel stocks continues to be an area of important research effort toward mitigating management of this commercially and recreationally vital fishery. The MARFIN program also continues to diversify its research base and show its ability to respond to critical current fisheries issues by funding studies characterizing shark fisheries and providing basic biological information for responsible management of various shark species. Research on economic and sociological impacts of fisheries regulations illustrates the recognition by the MARFIN program that all aspects of a fishery must be understood to provide adequate fisheries management.

¹NMFS Strategic Plan Goals:

- Rebuild overfished marine fisheries;
- Maintain currently productive fisheries;
- Advance fishery forecasts and ecosystem models;
- Integrate conservation of protected species and fisheries management;
- Improve seafood safety;
- Protect living marine resource habitat;
- Improve the effectiveness of international fisheries relationships; and
- Reduce impediment to U.S. aquaculture.

HISTORY OF THE MARFIN PROGRAM

The MARFIN Program received its initial impetus from a 1983 discussion paper entitled: "Research Needs For Information Leading To Full and Wise Use of Fishery Resources In The Gulf of Mexico," by Dr. Thomas D. McIlwain of the Gulf Coast Research Laboratory while he was in the office of then Representative Trent Lott. This paper, sometimes referred to as the Lott-McIlwain paper, proposed an additional investment in fisheries research and development in the Gulf of Mexico to increase the economic contribution of marine fisheries, develop more valuable products from existing fisheries, develop export markets, forecast variation in yields and conserve and maintain presently exploited resources.

The next step in the evolution of MARFIN was the preparation and publication of the Marine Fisheries Initiative - Gulf of Mexico Phase. This plan was developed by a joint industry, federal, state and academic task force, detailing the research and development efforts necessary to enhance, restore and maintain fisheries in the Gulf of Mexico. The program focused on funding projects which had the greatest probability of maintaining and improving existing fisheries, increasing revenues for the domestic industry, increasing yields from fisheries and generating increased recreational opportunity and harvest potential.

In 1992, the MARFIN program was expanded to include a South Atlantic component (North Carolina, South Carolina, Georgia and the Atlantic coast of Florida). The goals and objectives of the South Atlantic Phase of MARFIN are described in Special Report No. 13 of the Atlantic States Marine Fisheries Commission, Marine Fisheries Initiative (MARFIN) South Atlantic Phase.

The Lott-McIlwain paper and the Marine Fisheries Initiative publication were instrumental in gaining public support for the MARFIN program. On December 4, 1985, the conference report of the House and Senate that appropriated funds for the Departments of Commerce, Justice, State, the judiciary and related agencies for the fiscal year (FY) ending September 30, 1986, allocated \$2,850,000 for the MARFIN Program. The following list represents funding for each year from the start of the MARFIN program until the current year:

- * Fiscal Year 1986 - \$2,850,000
- * Fiscal Year 1987 - \$3,500,000
- * Fiscal Year 1988 - \$3,500,000
- * Fiscal Year 1989 - \$3,000,000
- * Fiscal Year 1990 - \$3,000,000
- * Fiscal Year 1991 - \$2,986,000
- * Fiscal Year 1992 - \$4,000,000 (This includes \$500,000 of the South Atlantic MARFIN and \$1,300,000 for shrimp trawl bycatch studies)
- * Fiscal Year 1993 - \$3,540,000
- * Fiscal Year 1994 - \$3,542,000

- * Fiscal Year 1995 - \$3,540,000
- * Fiscal Year 1996 - \$2,760,000 (No new projects were accepted during FY 1996 due to a reduction in congressional allocation, and because of the large number of active multi-year projects selected during previous funding cycles.)
- * Fiscal Year 1997 - \$3,000,000
- * Fiscal Year 1998 - \$3,000,000
- * Fiscal Year 1999 - \$3,000,000 (This includes \$500,000 for the Northeast Region)
- * Fiscal Year 2000 - \$1,603,209 No new projects were accepted during FY 2000 due to a reduction in congressional allocation, and because of the large number of active multi-year projects selected during previous funding cycles.)

MARFIN PROGRAM ORGANIZATION AND ADMINISTRATION

The NMFS Southeast Regional Director reformed the MARFIN Panel in FY 1992 when the program was expanded to cover the South Atlantic (Appendix 1). Each member of the MARFIN Panel provides individual recommendations to the Regional Director on MARFIN priorities and financial assistance applications. The MARFIN Panel membership is as follows:

- One state marine conservation agency representative each, from the Gulf of Mexico and the South Atlantic areas.
- One representative each from the Gulf of Mexico and the South Atlantic commercial fishing industries.
- The Executive Directors of the Gulf of Mexico and South Atlantic Fishery Management Councils.
- The Executive Directors of the Gulf and Atlantic States Marine Fisheries Commissions.
- One representative each from the Gulf of Mexico and the South Atlantic recreational fishing industries.
- One representative each from the Gulf of Mexico and the South Atlantic Sea Grant Universities.
- The NOAA Grants Officer (ex-officio).
- A NMFS Southeast Fisheries Science Center Technical representative.
- The NMFS Southeast Region Program Officer acts as an advisor to the Regional Director and MARFIN Panel members concerning Federal, Department of Commerce and NOAA financial assistance administration requirements.

Alternate representatives to the MARFIN Panel serve when necessary. Individual Panel members are appointed by the NMFS Southeast Regional Director for staggered terms.

The Regional Director of the NMFS Southeast Regional Office (SERO) relies on recommendations from individual members of the MARFIN Panel, the MARFIN Scientific Panel, and the Regional Program Office in selecting each year's projects.

Each year the MARFIN Panel and NMFS administrators and scientists identify areas of emphasis for the next year's competitive financial assistance program. These areas of emphasis are published in the Federal Register for public comment. After public review and comment, an announcement of funding availability through the competitive MARFIN financial assistance

program is published as a solicitation in the Federal Register.

The NMFS Southeast Regional State/Federal Liaison Office staff is responsible for the overall administration of all NMFS Southeast grants and cooperative agreement programs, including MARFIN (Appendix 2). Their responsibilities include planning, application and selection, negotiation, performance, monitoring and close-out of all assigned competitive and noncompetitive financial assistance programs. A NMFS Southeast Regional scientific or technical expert is assigned as the Technical Monitor for each MARFIN project. The Technical Monitor is responsible to the State/Federal Liaison Office Program Officer for all technical and cooperative aspects of assigned projects (Appendix 3). The NOAA Grants Officer is responsible for the overall administration of each NMFS financial assistance award issued to recipients outside of the Federal government and cooperates with the NMFS Southeast Region State/Federal Liaison Office in administering each financial assistance award.

FY 2000 Program Highlights

- The Twelfth Annual MARFIN Conference was conducted in Tampa, Florida on December 5-6, 2000.
- The factors resulting in release mortality of undersized red grouper, gag, red snapper and vermillion snapper are to be evaluated. Factors include depth caught and gear used.
- The biology of red snapper is being investigated by several methods. One approach is to sample commercially caught red snapper and determine the age, length, and distribution of these specimens. Three studies are focusing on stock determination using otolith microchemistry, growth rates, and genetics.
- The economics of charter and party boat fishing is being examined for the northern Gulf and for the eastern Gulf of Mexico and southern U.S. Atlantic states.
- The nursery grounds of red snapper in the northern Gulf of Mexico are being investigated and characterized by environmental parameters.
- Factors involved in the release mortality of reef fish is being investigated.

Overview of Ongoing Research Projects

The following project description provides the title and objectives/goals of ongoing research funded through the MARFIN Program in the Southeast Region:

A. Bycatch

1. Shrimp Trawl Fisheries

a. "Underwater Investigations Leading to Enhancement of Shrimp Retention and Finfish Reduction in Selected Bycatch Reduction Devices Employed in the Gulf and South Atlantic Shrimp Fisheries" - a one year, \$38,511 project using advanced underwater video to document the interaction of red snapper and other bycatch species with bycatch reduction devices (BRDs) and turtle excluder devices. A video of BRD performance will be produced as a tool for technology transfer. **MARFIN Award NA87FF0418**

2. Reef fish fisheries

a. "Evaluation of Multiple Factors Involved in Release Mortality of Undersized Red Grouper, Gag, Red Snapper and Vermillion Snapper" - the first year of a two year, \$327,783 project to obtain catch and release mortality rates by depth and gear for red grouper, gag, red snapper, and vermillion snapper. The goal is also to test the hypothesis that vermillion snapper do not survive release and the hypothesis that hook and release mortality is far greater than depth induced mortality for red snapper. Tagging studies will be carried out to determine shedding rate and to obtain movement patterns for the four study species. **MARFIN Award NA87FF0421.**

B. Reef Fish

1. Basic Biological Data

a. "Ecological Factors Limiting Density and Regulating Growth and Condition for Gag Grouper: A Definitive Test for the Role of Shelter" - the first year of a two year, \$175,158 project to determine if reef habitat, specifically available shelter, limits local densities of gag grouper and thereby regulates the growth and condition of gag on the shallow continental shelf. Reef shelter will be manipulated in a field experiment involving intensive non-destructive sampling of experimental reefs. **MARFIN Award NA97FF0350**

b. "Aspects of the Life History of the Red Grouper, *Epinephelus morio*, Along the Southeastern United States" - the first year of a two year, \$102,879 project to examine otoliths from red grouper to generate age-length keys and to determine sex ratio, and size and age at maturity. The project will also estimate population size using Virtual Population Analysis. **MARFIN Award NA97FF0347**

c. "Nursery Habitats of Red Snapper (*Lutjanus campechanus*) in the North West Gulf of Mexico" - a one year, \$100,000 project to identify and characterize nursery habitats of red snapper on inner shelf areas in the northwestern Gulf of Mexico. The quality of different habitat will be evaluated and related to spatial and temporal patterns of use. **MARFIN Award NA97FF0346**

d. "Movement, Growth, Maturity Schedules and Fecundity of Gray Triggerfish (*Balistes caprisus*) from the North Central Gulf of Mexico" - the first year of a three-year, \$147,644 project to provide biological data needed for proper assessment of gray triggerfish and to determine if adult gray triggerfish may better be managed with respect to local demographics in the north central Gulf of Mexico. The study will determine if gray triggerfish inhabiting artificial reefs off the Alabama coast move significant distances, show significant directional movement and show significant movement as a function of certain environmental parameters. The study will also accurately age gray triggerfish and develop age-length keys, estimate growth parameters, and accurately describe the reproductive biology of the gray triggerfish. **MARFIN Award NA77FF0547**.

2. Population assessment of reef fish

a. "Genetic Stock Identification of Scamp, *Mycteroperca phenax*, Black Grouper, *Mycteroperca bonaci*, and Red Grouper, *Epinephelus morio*, in the Western Atlantic" - the first year of a three year, \$276,672 project to identify the stock structure of scamp, black and red grouper based upon genetic analysis of mitochondrial and nuclear DNA and to examine the genetic variation within and among populations of these species. The project will also test the hypothesis that changing sex ratios in protogynous species results in changes in the genetic structure of populations. **MARFIN Award NA87FF0423**.

b. "Stock Structure of Red Snapper in the Northern Gulf of Mexico: Is their Management as a Single Unit Stock Justified Based on Growth Rates" - the first year of a three year, \$396,351 project to determine the ages of fish sampled from recreational, commercial, and fishery-independent sources and to use age as size information from these collections to determine and compare growth rates of red snapper from across the Gulf. The project will also collect and analyze reproductive material to further understanding of red snapper spawning frequency and batch fecundity and to compare these reproductive variables among sampling regions. **MARFIN Award NA87FF0424**.

c. "Stock Structure of Red Snapper in the Northern Gulf of Mexico: Is their Management as a Single Unit Stock Justified Based on Otolith Microchemistry" - the first year of a three year, \$187,356 project to determine the relative contributions of regional nursery areas to contemporary, offshore adult congregations, to determine long term movement and mixing rates of red snapper across the region, and to determine the nursery of origin of juvenile red snapper taken in shrimp trawls. Otolith microchemistry, as determined by inductively coupled - plasma

mass spectrometry, will be used to link fish with nursery habitats. **MARFIN Award NA87FF0425**

d. "Stock Structure of Red Snapper in the Northern Gulf of Mexico: Is their Management as a Single Unit Stock Justified Based on Genetic Variation" - the first year of a three year, \$404,534 project to determine whether independent genetic subpopulations of red snapper exist in the northern Gulf, determine the number of breeders at different localities across the region and to determine whether changes in patterns of genetic variation and effective population size over decadal time scales are consistent with the hypothesis that stock size has decreased significantly the last two to three decades. The project will also examine red snapper taken as shrimp bycatch to add a new dimension to assessment of the impact this fishery has on red snapper. **MARFIN Award NA87FF0426.**

3. Management of reef fish

a. "Partitioning Release Mortality in the Undersized Red Snapper Bycatch: Comparison of Depth vs. Hooking Effect" - the first year of a two year, \$116,871 project to compare factors possibly leading to release mortality in red snapper. The project will use hyperbaric chambers to simulate field conditions in the lab to investigate the effects of rapid pressure changes on red snapper physiology. Red snapper caught aboard charter boats, head boats, and recreational vessels will be caught using circle and J hooks and tagged. Returns captures will be compared to determine hook mortality. **MARFIN Award NA97FF0349**

4. Evaluation of marine reserves as a fishery management tool

a. "Investigating Movement Patterns and Spawning Habitat of Red Hind Grouper in a Newly Established Marine Fishery Reserve in the U.S. Virgin Islands" - the first year of a two year, \$141,423 project to visually survey reef fish population structure and density of red hind grouper spawning aggregations. An intensive tag/release/recapture and sonic tagging program will also be undertaken to identify the source of groupers coming to the spawning sites. **MARFIN Award NA97FF0348**

5. The contributions of live-bottom habitat

a. "Maintenance of Critical Fish Spawning Habitat: Reproduction of the Ivory Tree Coral *Oculina varicosa*" - a one year, \$68,396 project to investigate the reproduction of deep and shallow water populations of *Oculina varicosa* with a view to enhancement of restoration efforts in deep water. Periodic samples will be taken and analyzed histologically to determine periodicity of reproduction, and biochemically to determine how internal cycling of nutrient reserves relates to fecundity and reproductive cycles. **MARFIN Award NA87FF0434**

C. Coastal Migratory Pelagic Fisheries

a. "Renewal of an Observer Program to Monitor the Directed Commercial Shark Fishery in the Gulf of Mexico and the South Atlantic" - a one year, \$149,910 project to re-establish and expand a cooperative shark resource data collection system designed to enhance the reliability of management strategies for the shark fisheries in the southeastern U.S. This project will provide baseline characterization data on the species composition, relative abundance, and size composition within species for coastal shark species groups by depth and season in each regional fishery. **MARFIN Award NA97FF0041**

b. "Stock Structure of Dolphin, *Coryphaena hippurus*, in the Western Central Atlantic as Determined by Molecular Genetic Techniques" - the first year of a three year, \$263,280 project to identify the stock structure of dolphin in the west central Atlantic using genetic analysis of mitochondrial and nuclear DNA. The project will examine the genetic variation within and among populations of dolphin and will test the hypothesis that two distinct populations or stocks exist in the region. Mitochondrial DNA will be analyzed by restriction endonuclease digestion of the ND-1 region. Sampling will include northern and southern aggregations in the west central Atlantic. **MARFIN Award NA87FF0427.**

D. Groundfish and Estuarine Fishes

1. Improved Catch-and-Effort Statistics ...Including Development of Age-Length Keys...

a. "Cooperative Research on the Biology and Assessment of Nearshore and Estuarine Fishes Along the Southeast Coast of the U.S.: Part 1. Weakfish; Part 2. Southern Flounder; Part 3. Spotted Seatrout; Part 4. Striped Mullet" - the first year of a three-year, \$1,047,116 project to develop gear specific, seasonal age-length keys for fishes taken in recreational and commercial fisheries in Georgia, South Carolina, and North Carolina. All four species will be aged by analysis of their sagittal otoliths. **MARFIN Award NA77FF0550.**

E. General

a.. "An Integrated Economic Analysis of Alternative Bycatch, Commercial, and Recreational Policies for the Recovery of the Gulf of Mexico Red Snapper" - a one year, \$88,589 project to conduct an economic analysis of alternative policies aimed at increasing red snapper stock levels in the Gulf of Mexico. The specific objectives include modifying the General Bioeconomic Fisheries Simulation Model (GBFSM) to include fractional license and fractional gear policies in the shrimp fishery, based on the GBFSM, developing a dynamic optimization model that incorporates a sustainability criterion, and estimating the increase in red snapper

stocks associated with alternative fixed and flexible bycatch and red snapper policies. **MARFIN Award NA87FF0420**

b. "An Assessment of the Recreational Demand for Gulf of Mexico Red Snapper" - a one year, \$97,526 project to assess whether red snapper regulations, charter and private/rental boat use, and targeting single versus aggregate species have an impact on the recreational demand for red snapper and its economic value. Specific objectives include examining the Southeast MRFSS data using descriptive statistics and process the data so the it is manageable for the estimation of recreation demand functions and to determine whether charter boat recreation demand and its value is statistically different from private/rental boat recreation demand and its value. **MARFIN Award NA87FF0432**

c. "Defining and Identifying Fishing Dependent Communities: Development and Confirmation of a Protocol" - the first year of a two year, \$220,050 project to develop a definition of fishery dependent communities and to develop a protocol for identifying communities empirically. The project is also designed to collect demographic information on fishing dependent families. **MARFIN Award NA87FF0433.**

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- (3) Joseph, Edwin B., David M. Cupka, Victor G. Burrell, Jr. and Peter J. Elridge. 1988. Marine Fisheries Initiative (MARFIN): South Atlantic Phase. Atlantic States Marine Fisheries Commission Special Report No. 13.

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Appendix 2: NMFS SOUTHEAST REGIONAL MARFIN ADMINISTRATIVE STAFF

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Mr. Mike Burton	Beaufort Laboratory
Dr. Jose Castro	Miami Laboratory
Dr. Jean Cramer	Miami Laboratory
Ms. Nancie Cummins	Miami Laboratory
Mr. Douglas A. Devries	Panama City Laboratory
Dr. Pete Eldridge	Southeast Regional Office
Mr. Daniel Foster	Mississippi Laboratory
Mr. Gregg Gitschlag	Galveston Laboratory
Dr. Chris Gledhill	Mississippi Laboratory
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Mr. John Watson	Mississippi Laboratory
Mr. Wayne N. Witzell	Miami Laboratory
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Ms. Zoula Zein-Eldin	Galveston Laboratory
Dr. Roger Zimmerman	Galveston Laboratory

Appendix 4 - Federal Register Notice
Volume 63, Number 208
October 28, 1998

North Carolina, South Carolina, Georgia, and Florida involving the U.S. fishing industry (recreational and commercial), including fishery biology, resource assessment, socio-economic assessment, management and conservation, selected harvesting methods, and fish handling and processing. NMFS issues this notice describing the conditions under which applications will be accepted and selected for funding. Areas of emphasis for MARFIN were formulated from recommendations received from non-Federal scientific and technical experts and from NMFS research and operations officials.

DATES: Applications for funding under this program will be accepted between October 28, 1998, and 5 p.m. eastern daylight time on December 28, 1998. Applications received after that time will not be considered for funding. No facsimile applications will be accepted.

ADDRESSES: Send applications to: Ellie Francisco Roche, Chief, State/Federal Liaison Office, Southeast Regional Office, NMFS, 9721 Executive Center Drive, N., St. Petersburg, FL 33702.

FOR FURTHER INFORMATION CONTACT: Ellie Francisco Roche, 727-570-5324.

SUPPLEMENTARY INFORMATION:

I. Authority

The Secretary of Commerce (Secretary) is authorized under 15 U.S.C. 713c-3(d) to carry out a national program of research and development addressed to such aspects of U.S. fisheries as harvesting, processing, marketing and associated infrastructures, if not adequately covered by projects assisted under 15 U.S.C. 713c-3(c), as the Secretary deems appropriate.

II. Catalog of Federal Domestic Assistance

This program is described in the "Catalog of Federal Domestic Assistance" (CFDA) under program number 11.433, Marine Fisheries Initiative.

III. Program Description

MARFIN is a competitive Federal assistance program that promotes and endorses programs that seek to optimize research and development benefits from U.S. marine fishery resources through cooperative efforts that involve the best research and management talents to accomplish priority activities. Projects funded under MARFIN are focused into cooperative efforts that provide answers for fishery needs covered by the NMFS Strategic Plan, available from the Southeast Regional Office (see **ADDRESSES**), particularly those goals

relating to rebuilding overfished marine fisheries, maintaining currently productive fisheries, and integrating conservation of protected species and fisheries management.

Emphasis will be placed upon funding projects that have the greatest probability of recovering, maintaining, improving, or developing fisheries; improving the understanding of factors affecting recruitment success; and/or generating increased values and recreational opportunities from fisheries. Projects will be evaluated as to the likelihood of achieving these benefits through both short- and long-term research efforts, with consideration given to the magnitude of the eventual economic or social benefits that may be realized. Short-term projects that may yield more immediate benefits and projects yielding longer-term benefits will receive equal consideration.

IV. Funding Availability

This solicitation announces that funding of approximately \$1.10 million may be available in fiscal year (FY) 1999. MARFIN financial assistance started in FY 1986 for financial assistance to conduct research for fishery resources in the Gulf of Mexico and off the South Atlantic states of North Carolina, South Carolina, Georgia, and Florida. There is no guarantee that sufficient funds will be available to make awards for all approved projects.

Project proposals accepted for funding for a project period over 1 year that include multiple project components and severable tasks to be funded during each budget period will not compete for funding in subsequent budget periods within the approved project period. However, funding for subsequent project components is contingent upon the availability of funds from Congress and satisfactory performance and will be at the sole discretion of the agency. Publication of this notice does not obligate NMFS to award any specific cooperative agreement or to commit all or any parts of the available funds.

V. Matching Requirements

Applications must reflect the total budget necessary to accomplish the project, including contributions and/or donations. Cost-sharing is not required for the MARFIN program. However, cost-sharing is encouraged and, in case of a tie in considering proposals for funding, cost-sharing may affect the final decision. The allowability of all cost-sharing will be determined on the basis of guidance provided in applicable Federal cost principles. If an applicant chooses to cost-share, and if that application is selected for funding, the

DEPARTMENT OF COMMERCE

National Oceanic and Atmospheric Administration

[Docket No. 980908232-8232-01
I.D.092595C]

RIN 0648-ZA48

Financial Assistance for Research and Development Projects in the Gulf of Mexico and Off the U.S. South Atlantic Coastal States; Marine Fisheries Initiative (MARFIN)

AGENCY: National Marine Fisheries Service (NMFS), National Oceanic and Atmospheric Administration (NOAA), Department of Commerce (DOC).

ACTION: Notice.

SUMMARY: Subject to the availability of funds, NMFS will continue MARFIN to assist persons in carrying out research and development projects that optimize the use of fisheries in the Gulf of Mexico and off the South Atlantic States of

applicant will be bound by the percentage of the cost share reflected in the cooperative agreement award.

The non-Federal share may include the value of in-kind contributions by the applicant or third parties or funds received from private sources or from state or local governments. Federal funds may not be used to meet the non-Federal share of matching funds, except as provided by Federal statute. Third party in-kind contributions may be in the form of, but are not limited to, personal services rendered in carrying out functions related to the project and use of real or personal property owned by others (for which consideration is not required) in carrying out the projects. NMFS must contribute at least 50 percent of total project costs, as provided by statute, 15 U.S.C. 713c-3(c)(4)(B).

The total cost of a project begins on the effective award date of an authorized cooperative agreement between the applicant and the NOAA Grants Officer and ends on the date specified in the award. Accordingly, costs incurred either in the development of a project or the financial assistance application or in time expended in any subsequent discussions or negotiations prior to the award are neither reimbursable nor recognizable as part of the recipient's cost share.

VI. Type of Funding Instrument

The cooperative agreement has been determined to be the appropriate funding instrument. NMFS is substantially involved in developing program research priorities, conducting cooperative activities with recipients, and evaluating the performance of recipients for effectiveness in meeting national and regional goals for fishery research in the southeastern United States.

VII. Eligibility Criteria

A. Applications for cooperative agreements for MARFIN projects may be made, in accordance with the procedures set forth in this notice, by:

1. Any individual who is a citizen or national of the United States or a citizen of the Republic of the Marshall Islands, Republic of Palau, or the Federated States of Micronesia.
2. Any corporation, partnership, or other entity, non-profit or otherwise, if such entity is a citizen of the United States within the meaning of section 2 of the Shipping Act, 1916, as amended (46 U.S.C. 802). Colleges, universities, and game and fish departments of the several states are included in this eligibility criteria.

DOC/NOAA/NMFS are committed to cultural and gender diversity in their programs and encourage women and minority individuals and groups to submit applications.

B. Federal agencies, Federal instrumentalities, including Regional Fishery Management Councils and their employees, Federal employees, including NOAA employees (full-time, part-time, and intermittent personnel or their immediate families), and NOAA offices or centers are not eligible to submit an application under this solicitation or aid in the preparation of an application during the 60-day solicitation period, except to provide information about the MARFIN program and the priorities and procedures included in this solicitation. However, NOAA employees are permitted to provide information about ongoing and planned NOAA programs and activities that may have implication for an application. Potential applicants are encouraged to contact Ellie Francisco Roche at the NMFS Southeast Regional Office (see ADDRESSES) for information on NOAA programs.

VIII. Award Period

The award period for the project may be more than 1 year consisting of one, two, or three budget periods that correspond to the funding for the proposed project components. The award period will depend upon the duration of funding requested by the applicant in the Application for Federal Assistance, the decision of the NMFS selecting official on the amount of funding, the results of post-selection negotiations between the applicant and NOAA officials, and pre-award review of the application by NOAA and DOC officials. Normally, each budget period may be no more than 12 months in duration. NOAA policy limits the total duration of a project to 3 years.

IX. Indirect Costs

The Project Budget form may include an amount for indirect costs if the applicant has an established indirect cost rate with the Federal government. The total dollar amount of the indirect costs proposed in an application under this program must not exceed the indirect cost rate negotiated and approved by a cognizant Federal agency prior to the proposed effective date of the award, or 100 percent of the total proposed direct costs dollar amount in the application, whichever is less. The Federal share of the indirect costs may not exceed 25 percent of the total proposed direct costs. Applicants with approved indirect cost rates above 25 percent of the total proposed direct

costs may use the amount above the 25-percent level up to the 100-percent level as part of the non-Federal share. If applicable, a copy of the current, approved, negotiated indirect cost agreement with the Federal government must be included in the application.

X. Profit or Fees

Profit or management fees paid to for-profit or commercial organization grantees are allowable at the discretion of NOAA. However, they shall not exceed 7 percent of the total estimated direct costs. There must be no profit or fees to the recipient in any overhead charge. Payment of fees or profit must be subject to successful completion of project objectives.

XI. Application Forms and Kit

Before submitting an application under this program, applicants should contact the NMFS Southeast Regional Office for a copy of this solicitation's MARFIN Application Package (see ADDRESSES).

Applications for project funding under this program must be complete and in accordance with instructions in the MARFIN Application Package. They must identify the principal participants and include copies of any agreements describing the specific tasks to be performed by participants. Project applications should give a clear presentation of the proposed work, the methods for carrying out the project, its relevance to managing and enhancing the use of Gulf of Mexico and/or South Atlantic fishery resources, and cost estimates as they relate to specific aspects of the project. Budgets must include a detailed breakdown, by category of expenditures, with appropriate justification for both the Federal and non-Federal shares. Applicants should not assume prior knowledge on the part of NMFS as to the relative merits of the project described in the application. Applications are not to be bound in any manner and must be printed only on one side of each sheet of paper. All incomplete applications will be returned to the applicant. Ten copies (one original and nine copies) of each application are required and should be submitted to the NMFS Southeast Regional Office, State/Federal Liaison Office (see ADDRESSES). OMB has approved 10 copies, under Approval #0648-0175.

XII. Project Funding Priorities

Proposals for FY 1999 should exhibit familiarity with related work that is completed or ongoing. Where appropriate, proposals should be multi-

disciplinary. Coordinated efforts involving multiple institutions or persons are encouraged. The areas of special emphasis are listed here, but proposals in other areas will be considered on a funds-available basis.

In addition to referencing specific area(s) of special interest as listed below, proposals should state whether the research will apply to the Gulf of Mexico only, the South Atlantic only, or to both areas. Successful applicants may be required to collect and manage data in accordance with standardized procedures and formats approved by NMFS and to participate with NMFS in specific cooperative activities that will be determined by consultations between NMFS and successful applicants before project grants are awarded. All recipients of financial assistance under this program shall include funding in the budget for the principal investigator to participate in an annual MARFIN Conference in Tampa, FL, at the completion of the project.

Bycatch

The bycatch of biological organisms (including interactions with sea turtles and marine mammals) by various fishing gears can have wide-reaching impacts from a fisheries management and an ecological standpoint, with the following major concerns:

A. *Shrimp trawl fisheries.* Studies are needed to contribute to the regional shrimp trawl bycatch program (including the rock shrimp fishery) being conducted by NMFS in cooperation with state fisheries management agencies, commercial and recreational fishing organizations and interests, environmental organizations, universities, Councils, and Commissions. Specific guidance and research requirements are contained in the Cooperative Bycatch Plan for the Southeast, available from NMFS (see ADDRESSES). In particular, the studies should address:

1. Data collection and analyses to expand and update current bycatch estimates, temporally and spatially emphasizing areas of greatest impact by shrimping. Sampling effort should include estimates of numbers, weight, and random samples of size (age) structure of associated bycatch complex, with emphasis on those overfished species under the jurisdiction of the Councils.

2. Assessment of the status and condition of fish stocks significantly impacted by shrimp trawler bycatch, with emphasis given to overfished species under the jurisdiction of the Councils. Other sources of fishing and

nonfishing mortality should be considered and quantified as well.

3. Identification, development, and evaluation of gear, non-gear, and tactical fishing options to reduce bycatch.

4. Improved methods for communicating with and improving technology and information transfer to the shrimp industry.

5. Development and evaluation of statistical methods to estimate the bycatch of priority management species in the Gulf and South Atlantic shrimp trawl fisheries.

B. *Pelagic longline fisheries.* Several pelagic longline fisheries exist in the Gulf and South Atlantic, targeting such highly migratory species as tunas, sharks, billfish, and swordfish. Priority areas include:

1. Development and evaluation of gear and fishing tactics to minimize bycatch of undersized and unwanted species, including sea turtles, marine mammals, and overfished finfish species/stocks.

2. Assessment of the biological impact of longline bycatch on related fisheries.

C. *Reef fish fisheries.* The reef fish complex is exploited by a variety of fishing gear and tactics. The following research on bycatch of reef fish species is needed:

1. Development and evaluation of gear and fishing tactics to minimize the bycatch of undersized and unwanted species, including sea turtles and marine mammals.

2. Characterization and assessment of the impact of bycatch of undersized target species, including release mortality, during recreational fishing and during commercial longline, bandit gear and trap fishing.

3. Determination of the release mortality of red snapper caught on commercial bandit rigs that are electrically or hydraulically powered.

D. *Finfish trawl fisheries.* Studies are needed on quantification and qualification of the bycatch in finfish trawl fisheries, such as the flounder and fly-net fisheries in the South Atlantic.

E. *Gillnet fisheries.* Studies are needed on quantification and qualification of the bycatch in coastal and shelf gillnet fisheries for sciaenids, scombrids, bluefish and other dogfish sharks of the South Atlantic and Gulf of Mexico (particularly interaction with sea turtles and marine mammals).

F. *Economic considerations of bycatch reduction.*

1. Develop and test models, using actual or hypothesized data that explicitly consider the costs to the directed fishery and gains to the bycatch fishery. The models should include the effects of the management

systems for the directed and bycatch fisheries and should attempt to describe criteria for the correct level of bycatch reduction (e.g., marginal cost and value of reduction are equal).

2. Develop economic incentives and other innovative alternatives to gear and season/area restrictions as ways to reduce bycatch. The proposal should attempt to contrast the relative costs, potential gains, and levels of bycatch reduction

associated with traditional methods and any innovative alternatives addressed by the proposals.

3. Describe the costs and returns performance of South Atlantic shrimp fisheries as necessary background for the economics of bycatch reduction.

Reef Fish

Some species within the reef fish complex are showing signs of being overfished either because of directed efforts or because of being the bycatch of other fisheries. The ecology of reef fish makes them vulnerable to overfishing because they tend to concentrate over specific types of habitat with patchy distribution. This behavior pattern can make traditional fishery statistics misleading. Priority research areas include:

A. *Collection of basic biological data for species in commercially and recreationally important fisheries.*

1. *Age and growth of reef fish.*

- a. Description of age and growth patterns, especially for red, vermillion, gray, and cubera snappers; gray triggerfish; gag; black grouper; hogfish; red porgy; and other less dominant forms in the management units for which data are lacking.

- b. Contributions to the development of annual age-length keys and description of age structures for exploited populations for all species in the complex addressed in the Reef Fish and Snapper/Grouper Management Plans for the Gulf and South Atlantic, respectively, prioritized by importance in the total catch.

- c. Design of sampling systems to provide a production-style aging program for the reef fish fishery. Effective dockside sampling programs are needed over a wide geographic range, especially for groupers, to collect information on reproductive state, size, age, and sex.

2. *Reproduction studies of reef fish.*

- a. Maturity schedules, fecundity, and sex ratios of commercially and recreationally important reef fish, especially gray triggerfish, gag, and red porgy in the Gulf and South Atlantic.

- b. Studies of all species to characterize the actual reproductive contribution of females by age.
- c. Identification and characterization of spawning aggregations by species, area, size group, and season.
- d. Effects of fishing on changes of sex ratios for gag, red grouper, and scamp, and disruption of aggregations.
- e. Investigations of the reproductive biology of gag, red grouper and other grouper species.

3. Recruitment of reef fish.

- a. Source of recruitment in Gulf and South Atlantic waters, especially for snappers, groupers, and amberjacks.
- b. Annual estimation of the absolute or relative recruitment of juvenile gag, gray snapper, and lane snapper to estuarine habitats off the west coast of Florida and to similar estuarine nursery habitats along the South Atlantic Bight; development of an index of juvenile gag recruitment for the South Atlantic based on historical databases and/or field studies.
- c. The contribution of live-bottom habitat and habitat areas of particular concern (*Oculina* banks) off Fort Pierce, Florida and off west central Florida to reef fish recruitment.

4. Stock structure of reef fish.

- a. Movement and migration patterns of commercially and recreationally valuable reef fish species, especially gag in the Gulf and South Atlantic and greater amberjack between the South Atlantic and Gulf.
- b. Biochemical/immunological and morphological/meristic techniques to allow field separation of lesser amberjack, almaco jack, and banded rudderfish from greater amberjack to facilitate accurate reporting of catch.
- c. Stock structure of wreckfish in the South Atlantic and of greater amberjack in the Gulf and South Atlantic.

B. Population assessment of reef fish.

- 1. Effect of reproductive mode and sex change (protogynous hermaphroditism) on population size and characteristics, with reference to sizes of fish exploited in the fisheries and the significance to proper management.
- 2. Source and quantification of natural and human-induced mortalities, including release mortality estimates for charter boats, headboats, and private recreational vessels, especially for red snapper and the grouper complex.
- 3. Determination of the habitat and limiting factors for important reef fish resources in the Gulf and South Atlantic.
- 4. Description of habitat and fish populations in the deep reef community and the prey distributions supporting the community.
- 5. Development of statistically valid indices of abundance for important reef

fish species in the South Atlantic and Gulf, especially red grouper, jewfish, and Nassau grouper.

6. Assessment of tag performance on reef fish species, primarily snappers and groupers. Characteristics examined should include shedding rate, effects on growth and survival, and ultimately, the effects of these characteristics on estimations of vital population parameters.

7. Stock assessments to establish the status of major recreational and commercial species. Innovative methods are needed for stock assessments of aggregate species, including the effect of fishing on genetic structure and the incorporation of sex change for protogynous hermaphrodites into stock assessment models.

8. Assessment of Florida Bay recovery actions on reef fish recruitment and survival.

C. Management of reef fish.

- 1. Research in direct support of management, including catch-and-release mortalities, by gear and depth.
- 2. Evaluation of the use of marine reserves as an alternative or supplement to current fishery management practices and measures for reef fish. Studies should focus on the Experimental *Oculina* Reef Reserve, the Florida Keys National Marine Sanctuary, as well as on the identification of prime sites for the establishment of reserves in the U.S. South Atlantic and Gulf of Mexico.
- 3. Characterization and evaluation of biological impacts (e.g., changes in age or size structure of reef fish populations in response to management strategies).
- 4. Evaluation of vessel log data for monitoring the fishery and for providing biological, economic, and social information for management; and methods for matching log data to Trip Information Program samples for indices of effort.

Coastal Migratory Pelagic Fisheries

The commercial and recreational demand for migratory coastal pelagics has led to overfishing for certain species, including some stocks of king and Spanish mackerel. Additionally, some are transboundary with Mexico and other countries and may ultimately demand international management attention. Current high priorities include:

- A. Recruitment indices for king and Spanish mackerel, cobia, dolphin, wahoo, and bluefish, primarily from fishery-independent data sources.
- B. Fishery-independent methods of assessing stock abundance of king and Spanish mackerel.
- C. Release mortality data for all coastal pelagic species.

D. Improved catch statistics for all species in Mexican waters, with special emphasis on king mackerel. This includes length-frequency and life history information.

E. Information on populations of coastal pelagics overwintering off the Gulf of Mexico and the South Atlantic States of North Carolina, South Carolina, Georgia, and Florida, especially concerning population size, age and movement patterns.

F. Development of a practical method for aging dolphin.

F. Basic biostatistics for cobia, dolphin, and wahoo to develop age-length keys and maturation schedules for stock assessments.

H. Impact of bag limits on total catch and landings of king and Spanish mackerel.

I. Demand and/or supply functions for the commercial king mackerel fisheries, including baseline cost and return data. Cooperative efforts that cover the entire Southeast and employ common methodologies for all geographic areas are strongly encouraged.

J. Sociological and anthropological surveys of coastal pelagic fisheries.

Groundfish and Estuarine Fishes

Substantial stocks of groundfish and estuarine species occur in the Gulf and South Atlantic. Most of the database for assessments comes from studies conducted by NMFS and state fishery management agencies. Because of the historical and current size of these fish stocks, their importance as predator and prey species and their current or potential use as commercial and recreational fisheries, more information on their biology and life history is needed. General research needs are:

A. Red drum.

- 1. Size and age structure of the offshore adult stock in the Gulf.
- 2. Life history parameters and stock structure for the Gulf and the South Atlantic: Migratory patterns, long-term changes in abundance, growth rates, and age structure. Specific research needs for Atlantic red drum are estimates of fecundity as a function of length and weight and improved coastwide coverage for age-length keys.
- 3. Catch-and-release mortality rates from inshore and nearshore waters.

B. Life history and stock structure for weakfish, menhaden, spot, and croaker in the Gulf and the South Atlantic: Migratory patterns, long-term changes in abundance, growth rates, and age structure and comparisons of the inshore and offshore components of recreational and commercial fisheries.

C. Improved catch-and-effort statistics from recreational and commercial

fisheries, including development of age-length keys for size and age structure of the catch, to develop production models.

D. Abundance and distribution information on spiny dogfish off the coast of North Carolina, and particularly southern North Carolina.

General

There are many other areas of research that need to be addressed for improved understanding and management of fishery resources. These include methods for data collection, management, analysis, and better conservation. Examples of high-priority research needs include:

A. Identification of fishing communities, characterization of community dependence upon fishery resources and demographics of the families dependent on fishing or fishing related businesses.

B. Development of improved methods and procedures for transferring technology and educating constituency groups concerning fishery management and conservation programs. Of special importance are programs concerned with controlled access and introduction of conservation gear.

B. Design and evaluation of innovative approaches to fishery management with special attention given to those approaches that control access to specific fisheries.

D. Social, cultural, and /or economic aspects of establishing fishery reserves. Studies should employ surveys or other accepted data collection methods and should include consumptive users, non-consumptive users, and persons not dependent on use of marine resources. Various management alternatives should be considered in the studies, e.g., exclude all users, exclude all consumptive users, size of reserve, anchoring rules, or any other relevant management tools.

E. Design and evaluation of limited access options for the red snapper and king mackerel recreational fisheries with specific emphasis on modes of fishing and jurisdictional issues.

F. Estimation of demand models for recreational fishing trips when the target species include a single species, an aggregate of related species, or all species combined. Studies using new data from the Southeast economics add-on to Marine Recreational Fisheries Statistics Survey are highly encouraged. Priority species include red drum, Spanish mackerel, red grouper, and dolphin.

G. Sociocultural survey of commercial fishing in the Florida Keys. Proposals should address all fishing enterprises

including potential sociocultural effects of large marine reserves in the Tortugas area.

H. Cost and returns and marketing studies for the live rock aquaculture industry.

I. Studies to evaluate the value of non-consumptive uses of marine resources, especially as related to diving activities and marine reserves.

J. Develop a scientific basis for refining essential fish habitat (EFH) designation for future amendments to fishery management plans.

Priority in program emphasis will be placed upon funding projects that have the greatest probability of recovering, maintaining, improving, or developing fisheries; improving the understanding of factors affecting recruitment success; and generating increased values and recreational opportunities from fisheries. Projects will be evaluated as to the likelihood of achieving these benefits through short- and long-term research efforts, with consideration given to the magnitude of the eventual economic benefits that may be realized.

XIII. Evaluation Criteria

Successful applicants generally will be recommended within 210 days from the date of publication of this notice. The earliest start date of awards will be about 90 days after each project is selected and after all NMFS/applicant negotiations of cooperative activities have been completed (the earliest start date of awards will be about 300 days after the date of publication of this notice). Applicants should consider this selection and processing time in developing requested start dates for their applications. Proposed projects will be evaluated and ranked as follows:

A. Unless otherwise specified by statute, in reviewing applications for cooperative agreements, including those that include consultants and contracts, NOAA will make a determination regarding the following:

1. Is the involvement of the applicant necessary to the conduct of the project and to the accomplishment of its goals and objectives?

2. Is the proposed allocation of the applicant's time reasonable and commensurate with the applicant's involvement in the project?

3. Are the proposed costs for the applicant's involvement in the project reasonable and commensurate with the benefits to be derived from the applicant's participation?

4. Is the project proposal substantial in character and design?

B. Applications meeting the above requirements will be forwarded for technical evaluation by a panel of at

least 3 experts from non-NOAA as well as NOAA organizations. Applicants submitting applications not meeting the above requirements will be notified. Comments submitted to NMFS by each evaluator will be taken into consideration in the ranking of projects. NMFS will provide point scores on proposals, based on the following evaluation criteria:

1. Does the proposal have a clearly stated goal with associated objectives that meet the needs outlined in the Project Narrative? (30 points)

2. Does the proposal clearly identify and describe, in the Project Outline and Statement of Work, scientifically valid methodologies and analytical procedures that will adequately address project goals and objectives? (30 points)

3. Do the principal investigators provide a scientifically realistic timetable to enable full accomplishment of all aspects of the Statements of Work? (20 points)

4. Do the principal investigators define how they will maintain stewardship of the project performance, finances, cooperative relationships, and reporting requirements for the proposal? (10 points)

5. Are the proposed costs appropriate for the scope of work proposed? (10 points)

XIV. Selection Procedures

All applications will be ranked by a NMFS scientific panel into two groups: "Recommended," and "Not Recommended." Proposals ranked as "Not Recommended" will not be given further consideration for selection and funding. "Recommended" rankings will be presented to a panel of non-NOAA fishery experts who will individually consider the significance of the problem addressed in each project proposal, the technical evaluation, and need for funding. These panel members will provide individual recommendations to NMFS on each proposal classified as "Recommended."

The individual comments, recommendations, and evaluations of the non-NOAA panel members, and recommendations of the NMFS scientific panel and of the NMFS Southeast Program Officer will be considered by the Regional Administrator, Southeast Region, NMFS (Regional Administrator). The Regional Administrator, in consultation with the Assistant Administrator for Fisheries, will (a) determine which projects do not substantially duplicate other projects that are currently funded by NOAA or are approved for funding by other Federal offices, (b) select the projects to be funded, (c) determine the amount of

funds available for each project, and (d) determine which components of the selected projects shall be funded. The exact amount of funds awarded, the final scope of activities, the project duration, and specific NMFS cooperative involvement with the activities of each project will be determined in pre-award negotiations among the applicant, the NOAA Grants Office, and the NMFS Program Staff. Projects must not be initiated by recipients until a signed award is received from the NOAA Grants Office.

NMFS will make project applications available for review as follows:

A. *Consultation with members of the fishing industry, management agencies, environmental organizations, and academic institutions.* NMFS shall, at its discretion, request comments from members of the fishing and associated industries, groups, organizations, and institutions who have knowledge in the subject matter of a project or who would be affected by a project.

B. *Consultation with Government agencies.* Applications will be reviewed by the NMFS Southeast Region Program Office in consultation with the NMFS Southeast Fisheries Science Center, including appropriate operations and laboratory personnel, the NOAA Grants Office, and, as appropriate, DOC bureaus and other Federal agencies.

XV. Other Requirements

A. *Federal policies and procedures.* Recipients and subrecipients are subject to all Federal laws and Federal and DOC policies, regulations, and procedures applicable to Federal financial assistance awards. Women and minority individuals and groups are encouraged to submit applications under this program.

B. *Past performance.* Any first-time applicant for Federal grant funds is subject to a pre-award accounting survey prior to execution of the award. Unsatisfactory performance under prior Federal awards may result in an application not being considered for funding.

C. *Pre-award activities.* If applicants incur any costs prior to an award being made, they do so solely at their own risk of not being reimbursed by the Government. Notwithstanding any verbal or written assurance that they may have received, there is no obligation on the part of DOC to cover pre-award costs.

D. *No obligation of future funding.* If an application is selected for funding, DOC has no obligation to provide any additional future funding in connection with the award. Renewal of an award to increase funding or extend the period of

performance is at the total discretion of DOC.

E. *Delinquent Federal debts.* No award of Federal funds shall be made to an applicant or to its subrecipients who have any outstanding delinquent Federal debt or fine until:

1. The delinquent account is paid in full;

2. A negotiated repayment schedule is established and at least one payment is received; or

3. Other arrangements satisfactory to DOC are made.

F. *Name check review.* All non-profit and for-profit applicants are subject to a name-check review process. Name checks are intended to reveal if any key individuals associated with the applicant have been convicted of, or are presently facing, such criminal charges as fraud, theft, perjury, or other matters that significantly reflect on the applicant's management honesty or financial integrity. Potential non-profit and for-profit recipients may also be subject to reviews of Dun and Bradstreet data or of other similar credit checks.

G. *Primary applicant certifications.* All primary applicants must submit a completed Form CD-511, "Certifications Regarding Debarment, Suspension and Other Responsibility Matters; Drug-Free Workplace Requirements and Lobbying," and the following explanations are hereby provided:

1. *Nonprocurement debarment and suspension.* Prospective participants (as defined at 15 CFR 26.105) are subject to 15 CFR part 26, "Nonprocurement Debarment and Suspension" and to the related section of the certification form prescribed here;

2. *Drug-free workplace.* Grantees (as defined at 15 CFR 26.605) are subject to 15 CFR part 26, subpart F, "Government wide Requirements for Drug-Free Workplace (Grants)" and to the related section of the certification form prescribed here;

3. *Anti-lobbying.* Persons (as defined at 15 CFR 28.105) are subject to the lobbying provisions of 31 U.S.C. 1352, "Limitation on use of appropriated funds to influence certain Federal contracting and financial transactions." The lobbying section of the CD-511 applies to applications/bids for grants, cooperative agreements, contracts for more than \$100,000, and to loans and loan guarantees for more than \$150,000.

4. *Anti-lobbying disclosures.* Any applicant who has paid or will pay for lobbying using any funds must submit a Form SL-LLL, "Disclosure of Lobbying Activities," as required under 15 CFR part 28, appendix B.

H. *Lower tier certifications.* Recipients shall require applicants/bidders for subgrants, contracts, subcontracts, or other lower tier covered transactions at any tier under the award to submit, if applicable, a completed Form CD-512, "Certifications Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion-Lower Tier Covered Transactions and Lobbying" and disclosure form SF-LLL, "Disclosure of Lobbying Activities." Form CD-512 is intended for the use of recipients and should not be transmitted to DOC. A form SF-LLL submitted by any tier recipient or subrecipient should be submitted to DOC in accordance with the instructions contained in the award document.

I. *False statements.* A false statement on the application is grounds for denial or termination of funds and grounds for possible punishment by a fine or imprisonment as provided in 18 U.S.C. 1001.

J. *Intergovernmental review.* Applications under this program are subject to the provisions of E.O. 12372, "Intergovernmental Review of Federal Programs."

K. *Requirement to buy American-made equipment and products.* Applicants are hereby notified that they are encouraged, to the extent feasible, to purchase American-made equipment and products with funding provided under this program.

Classification

Prior notice and an opportunity for public comments are not required by the Administrative Procedure Act or any other law for this notice concerning grants, benefits, and contracts. Therefore, a regulatory flexibility analysis is not required for purposes of the Regulatory Flexibility Act.

This action has been determined to be not significant for purposes of E.O. 12866.

Cooperative agreements awarded pursuant to pertinent statutes shall be in accordance with the Fisheries Research Plan (comprehensive program of fisheries research) in effect on the date of the award.

Federal participation under the MARFIN Program may include the assignment of DOC scientific personnel and equipment.

Reasonable, negotiated financial compensation will be provided under awards for the work of eligible grantee workers.

Information-collection requirements contained in this notice have been approved by the Office of Management and Budget (OMB control number 0648-

0175) under the provisions of the Paperwork Reduction Act.

Notwithstanding any other provision of law, no person is required to respond to, nor shall any person be subject to a penalty for failure to comply with, a collection of information subject to the requirements of the Paperwork Reduction Act unless that collection of information displays a currently valid OMB control number.

Public reporting burden for agency-specific collection-of-information elements, exclusive of requirements specified under applicable OMB circulars, is estimated to average 4 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this reporting burden estimate or any other aspect of this collection of information, including suggestions for reducing the burden, to NMFS (see ADDRESSES).

Authority: 15 U.S.C. 713c-3(d).

Dated: October 19, 1998.

Andrew A. Rosenberg,
Deputy Assistant Administrator for Fisheries.
[FR Doc. 98-28861 Filed 10-27-98; 8:45 am]
BILLING CODE 3510-22-F

Appendix 5

MARFIN
Project
Summaries

NA87FF0418

MARFIN PROJECT SUMMARY

Project Title: Underwater Investigations Leading to Enhancement of Shrimp Retention and Finfish Reduction in Selected Bycatch Reduction Devices Employed in the Gulf and South Atlantic Shrimp Fisheries.

Project Status/Duration: New _____ Cont X Project Period: 16 Months

Name, Address, and Telephone Number of Applicant:

Gary L. Graham
P.O. Box 710
Palacios, TX 77465
Office Phone: (361) 972-3654; Cell Phone: (409) 292-6120

Principal Investigator(s) and Brief Statement of Qualifications:

Gary L. Graham, Marine Fisheries Specialist and Professor (Extension)

Project Objective: To expand knowledge of problematic areas associated with shrimp loss in specific bycatch reduction devices (BRDs). To test and document methods to reduce shrimp loss with BRDs. To increase reduction of juvenile red snapper and other finfish species harvested in shrimp trawls . . .

Specific Priority(ies) in Solicitation to which Project Responds:

Rebuild overfished marine fisheries.
Maintain current productive fisheries.

Summary of Work: (For continuing projects, include progress to date)

Through the use of advanced underwater video, interaction of red snapper and other bycatch species with BRDs and TEDs will be documented. Escapement of shrimp from BRDs will be monitored. Potential modifications to trawl gear for enhancement of finfish reduction and decreased shrimp loss will be investigated. A video of BRD performance will be produced as a tool for technology transfer and for use in producing new ideas relative to BRD advancement. Lastly, this effort will provide an opportunity to conduct a pilot study to determine if clear South Texas waters can provide an opportunity for divers to observe gear being fished in an area with abundant yields of commercial shrimp and juvenile red snapper.

	Year 1	Year 2	Year 3	Total
Project Funding:				
Federal	\$38,511			\$38,511
Non-Federal	\$8,303			\$8,303
Total	\$46,814			\$46,814

MARFIN PROJECT SUMMARY

Project Title: Evaluation of Multiple Factors Involved in Release Mortality of Undersized Red Grouper, Gag, Red Snapper and Vermilion Snapper.

Project Status/Duration: New _____ Cont X Project Period: 24 Months

Name, Address, and Telephone Number of Applicant:

Mote Marine Laboratory
1600 Thompson Parkway
Sarasota, FL 34236
Phone: (813) 388-4441; FAX (941) 388-4312

Principal Investigator(s) and Brief Statement of Qualifications:

Karen Burns (MML), Randy Edwards, Ph.D. (MML), Felicia C. Coleman, Ph.D. (FSU) and Christopher C. Koenig, Ph.D. (FSU)

Project Objective:

1. Test hypothesis that vermillion snapper do not survive release.
2. Test hypothesis that hook release mortality is far greater than depth induced mortality for red snapper.
3. Obtain catch and release mortality rates by depth and gear for red grouper, gag, red snapper and vermillion Snapper.
4. Determine tag shedding rates and effects on growth and survival fish tagged with single barbed dart tags on 4 target species.
5. Obtain movement/migration patterns for 4 target species in the Gulf of Mexico and South Atlantic.

Specific Priority(ies) in Solicitation to which Project Responds:

- 1.c(2). Characterization and assessment of the impact of bycatch of undersized target species, including release mortality, during recreational fishing and during commercial longline, bandit gear and trap fishing.
- 2.a(4). Stock structure of reef fish.
(a) Movement and migration patterns of commercially and recreationally valuable reef fish species.
- 2.b(2). Source and quantification of natural and human-induced mortalities, including release mortality estimates for charter boats, headboats, and private recreational vessels, especially for red snapper and the grouper complex.
- 2.b(6). Assessment of tag performance on reef fish species, primarily snappers and groupers. Characteristics examined should include shedding rate, effects on growth and survival, and ultimately, the effects of these characteristics on estimations of vital populations parameters.
- 2.c. Management of reef fish.
(1) Research indirect support of management, including catch-and-release mortalities, by gear and depth.

Summary of Work: (For continuing projects, include progress to date)

To evaluate the survivorship of red grouper, (*Epinephelus morio*, red snapper, *Lutjanus campechanus*, Gag, *Mycteroperca microlepis*, and vermillion snapper, *Rhomboploites aurorubins*, with regard to depth induced and hook release mortality. This will be accomplished by:

1. Tag returns;
2. Tag shedding rates;
3. Necropsy of dead fish to determine the cause of death; and
4. Cage studies to determine sub-lethal effects of death.

	Year 1	Year 2	Year 3	Total
Project Funding:				
Federal	\$161,913	\$165,870		\$327,783
Non-Federal	\$28,656	\$29,473		\$58,126
Total	\$190,569	\$195,343		\$385,912

MARFIN PROJECT SUMMARY

Project Title: Ecological Factors Limiting Density and Regulating Growth and Condition for Gag Grouper:
A Definitive Test for the Role of Shelter.

Project Status/Duration: New X Cont _____ **Project Period:** 24 Months

Name, Address, and Telephone Number of Applicant:

University of Florida
IFAS, G040 McCarty Hall
P.O.Box 110110
Gainesville, FL 32611
Phone: (352) 392-2356

Principal Investigator(s) and Brief Statement of Qualifications:

William J. Lindberg, Ph.D. and 19 years of fisheries related research
Thomas K. Frazer, Ph.D. and 10 years of fisheries related research
Kenneth M. Portier, Ph.D. and 18 years of statistical consulting

Project Objective: The goal for this project is to determine if reef habitat, specifically available shelter, limits local densities of gag grouper, *Mycteroperca microlepis*, and thereby regulates the growth and condition of gag on the shallow continental shelf, i.e., that gag growth and condition are density-dependent as a consequence of shelter limitation.

Specific Priority(ies) in Solicitation to which Project Responds:

Reef Fish: (A.1.a.) Age and Growth, (A.4.a.) Movement, and (B.3.) Habitat and Limiting Factors

Summary of Work: (For continuing projects, include progress to date)

The FY 1999 MARFIN announcement (*Federal Register* Vol.63, No.208, p.57660) emphasizes that "The ecology of reef fish makes them vulnerable to overfishing, because they tend to concentrate over specific types of habitat with patchy distribution. This behavior pattern can make traditional fishery statistics misleading." Therefore, scientific knowledge of how reef fish use patchy habitat and the effects on demographic parameters is essential for modeling their population and community dynamics, and for effectively planning and evaluating proposed actions to rebuild or maintain reef fishery stocks (e.g., changes in size limits or marine reserves). This project will experimentally test whether or not the growth and condition of gag, *Mycteroperca microlepis*, is density-dependent as a consequence of shelter limitation on gag densities through the process of density-dependent habitat selection. Such work is essential for spatially explicit population models to serve the effective management of reef fishes such as gag grouper.

Reef shelter will be manipulated in a field experiment of 2 years duration. Intensive non-destructive sampling of experimental reefs will provide time-series data for predicted changes in fish densities and relative weight, while periodic sub-sampling will provide specimens for growth estimates from otolith analyses. This approach is possible only because replicate experimental reefs already exist, with a foundation of data already established.

	Year 1	Year 2	Year 3	Total
Project Funding:				
Federal	\$90,000	\$85,158		\$175,158
Non-Federal	\$76,523	\$78,670		\$155,193
Total	\$166,523	\$163,828		\$330,351

NA97FF0347

MARFIN PROJECT SUMMARY

Project Title: Aspects of the Life History and Population Characteristics of the Red Grouper, *Epinephelus morio*, along the Southeastern United States

Project Status/Duration: New X Cont _____ **Project Period:** 24 Months

Name, Address and Telephone Number of Applicant:

John C. McGovern
Marine Resources Research Institute
P.O. Box 12559
Charleston, SC 29422-2559
Phone: (843) 762-5414; FAX (843) 762-5110; e-mail mcgovernj@mrd.dnr.state.sc.us

Principal Investigators and Brief Statement of Qualifications:

John C. McGovern, Ph.D.; Associate Marine Scientist, SCDNR; experience with fish research and project management
George R. Sedberry, Ph.D.; Associate Marine Scientist, SCDNR; international fisheries research and project management
Patrick J. Harris, Ph.D.; Assistant Marine Scientist, SCDNR; experience with life history studies, VPA to estimate population size

Project Objective: 1) Examine otoliths from red grouper to generate age-length keys; 2) to determine sex ratio, size and age of maturity and maturity schedules; 3) to estimate population size via Virtual Population Analyses; and 4) to provide these data in a timely fashion to the NMFS and South Atlantic Fishery Management Council.

Specific Priority(ies) in Solicitation to which Project Responds:

Reef fish. (A) Collection of basic biological data; (1) Age and growth of reef fish; (2) Reproduction of reef fish; (a) Maturity schedules, fecundity, sex ratio; (e) reproductive biology of red grouper.

Summary of Work: The red grouper, *Epinephelus morio*, is a protogynous serranid that is associated with reef habitat throughout the Gulf of Mexico and along the south Atlantic coast to New England. Red grouper landings off eastern FL declined during the 1990's while North Carolina landings increased dramatically. During 1986-1995, 45% of the red grouper landings from the southeastern United States occurred in eastern Florida and 53% were landed in North Carolina. Virtually no red grouper were landed in Georgia and South Carolina. This disjunct distribution suggests that there may be differences in aspects of the life history of red grouper off North Carolina and Florida and that different management regulations may be required for the two regions. Despite the commercial importance of this species very few life history studies have been conducted for red grouper taken from the southeast Atlantic states. As a result, management regulations are based on life history data from red grouper in the Gulf of Mexico. The only study of red grouper age and growth along the southeastern United States examined data that were collected during the 1970's and 1980's from North Carolina to eastern Florida and did not consider the disjunct distribution of red grouper. There have been no published accounts of the reproductive status of this species off the southeastern coast. We propose to compare aspects of age, growth, reproduction and fecundity of red grouper from fish caught off eastern Florida to that of fish caught off North Carolina. We also intend to estimate population size for the two areas via Virtual Population Analysis.

	Year 1	Year 2	Year 3	Total
Project Funding:				
Federal	\$60,000	\$42,879		\$102,879
Non-Federal	\$5,952	\$5,952		\$11,904
Total	\$65,951	\$48,832		\$114,783

NA97FF0346

MARFIN PROJECT SUMMARY

Project Title: Nursery Habits of Red Snapper (*Lutjanus Campechanus*) in the North West Gulf Mexico

Project Status/Duration: New X Cont _____ **Project Period:** 12 Months

Name, Address, and Telephone Number of Applicant:

Texas A&M Research Foundation
TAMUS 3578
College Station, TX 77843

Principal Investigator(s) and Brief Statement of Qualifications:

Dr. Andre M. Landry, Jr., Professor of Marine Biology and Wildlife and Fisheries Sciences at Texas A&M University; Expertise and Research Interests: Life history of estuarine and marine fishes, reef fish community dynamics, ichthyology.

Dr. Jay R. Rooker, Assistant Professor of Marine Biology at Texas A&M University; Expertise and Research Interests: Fisheries ecology, postrecruitment processes, fish demography, ecology of reef fishes.

Project Objective:

The proposed research will identify and characterize nursery inner shelf areas in the northwest Gulf of Mexico. Several complementary approaches will be used to determine spatial and temporal utilization of shell-ridge and associated habitats by juvenile red snapper in the northwest Gulf of Mexico. The "quality" of different habitats occupied by juvenile red snapper also will be evaluated and related to spatial and temporal patterns of habitat use. Further, we will investigate the role of emigration activity by Age-1 snapper on the recruitment of newly settled red snapper to nursery grounds.

Specific Priority(ies) in Solicitation to which Project Responds:

The proposed research responds to the need to develop innovative approaches to assess the status and condition of fish stocks significantly impacted by shrimp trawler bycatch (MARFIN Funding Priorities). In addition, this research is directly relevant to the recommendations outlined in the Magnuson-Stevens Fishery and Conservation Act (Sustainable Fisheries Act 1966) regarding the identification and description of Essential Fish Habitat (EFH) for species under Federal fishery management.

Summary of Work: (For continuing projects, include progress to date)

The proposed research will identify and characterize nursery habitats of red snapper on inner shelf areas in the northwest Gulf of Mexico. Several complementary approaches will be used to characterize environmental and habitat variables at sites where juvenile red snapper aggregate. The "quality" (based on growth potential) of different habitats occupied by juvenile red snapper will be evaluated and related to spatial and temporal patterns of habitat use. Further, we hypothesize that recruitment to certain nursery areas (i.e., shell-ridge zones) by recently settled red snapper is a function of emigration activity by Age-1 snapper (i.e., movement away from shell-ridge habitats to more complex structure). This hypothesis will be tested by examining the interplay of immigration and emigration activity of Age-0 and Age-1 snapper, respectively.

	Year 1	Year 2	Year 3	Total
Project Funding:				
Federal	\$100,000			\$100,000
Non-Federal	\$36,690			\$36,690
Total	\$136,690			\$136,690

MARFIN PROJECT SUMMARY

Project Title: Movement, growth, maturity schedules and fecundity of gray triggerfish (*Balistes capriscus*) from the north central Gulf of Mexico.

Project Status/Duration: New _____ Cont X Project Period: 36 Months

Name, Address, and Telephone Number of Applicant:

Dr. Robert L. Shipp
Dept. of Marine Sciences
University of South Alabama
Mobile, Alabama 36688
Phone: (334) 460-7136

Principal Investigator(s) and Brief Statement of Qualifications:

Dr. Shipp is currently Professor and Chair of the Marine Sciences Department at the University of South Alabama, Mobile, Alabama and a member of the Gulf of Mexico Fisheries Management Council. He received his Ph.D. in 1970 from Florida State University, Tallahassee, Florida. He has been involved with 25 grants and contracts as principal investigator or co-principal investigator dealing with many aspects of fish biology. Also, he has authored or co-authored 32 publications and 40+ papers delivered at scientific meetings dealing with many aspects of fish biology.

Project Objective: The goal of this project is to provide biological data to enhance the existing data base needed for the proper assessment of gray triggerfish and to determine if adult gray triggerfish may better be managed with respect to local demographics in the north central Gulf of Mexico. The first objective of the proposed study is to determine if gray triggerfish inhabiting artificial reefs off the Alabama coast move significant distances from point of tagging, show significant directional movement, and show significant movement as a function of certain environmental parameters. The second objective of the proposed study is to accurately age gray triggerfish and develop age-length keys and estimate growth parameters. The final objective of this study is to accurately describe the reproductive biology of gray triggerfish in the north central Gulf of Mexico.

Specific Priority(ies) in Solicitation to which Project Responds:

2a(1a). Description of age and growth patters for . . . gray triggerfish . . . 2a(2a). Maturity schedules, fecundity, and sex ratios for commercially and recreationally important reef fish, especially gray triggerfish . . . in the Gulf . . . 2a(4a). Movement and migration patterns of commercially and recreationally valuable reef species . . . in the Gulf . . .

Summary of Work: Eighty gray triggerfish will be collected each month between Oct. 1997 and Sept. 2000 from charter boats off Dauphin Island, Alabama and Orange Beach, Alabama, various local fishing rodeos, commercial fishers and wholesale retailers. Data collected from each fish will include the first dorsal spines, length and weight measurements, and gonads. Spines and gonads will be processed for age estimation and to determine sex, reproductive state, temporal spawning patterns, and fecundity. Age estimates will be used to develop sex-specific growth models, age-at-length keys, determination of age and size at maturity, and sex ratios at age. Growth rings in the first dorsal spine will be validated as annuli using marginal increment analysis. Also, gray triggerfish will be tagged in the north central Gulf on each monthly tagging cruise. Hydrographic parameters and reef make up will be recorded. Recaptures by fishermen and by researchers on subsequent cruises will be analyzed to determine if significant movement patterns exist. Data will be made available to the National Marine Fisheries Service to aid in future stock assessments of gray triggerfish in the Gulf of Mexico.

	Year 1	Year 2	Year 3	Total
Project Funding:				
Federal	\$48,276	\$49,039	\$50,329	\$147,644
Non-Federal	\$8,461	\$8,648	\$8,917	\$26,026
Total	\$56,737	\$57,687	\$59,246	\$173,670

MARFIN PROJECT SUMMARY

Project Title: Genetic Stock Identification of Scamp, *MYCTEROPERCA PHENAX*, Black Grouper, *MYCTEROPERCA BONACI*, and Red Grouper, *EPINEPHELUS MORIO* in the western Atlantic.

Project Status/Duration: New ☐ Cont ☒ **Project Period:** 36 Months

Name, Address, and Telephone Number of Applicant:

Robert W. Chapman
Marine Resources Research Institute
P.O. Box 12559
Charleston, SC 29422-2559
Phone: (843) 762-5402; FAX (843) 762-5110

Principal Investigators and Brief Statement of Qualifications:

Robert W. Chapman, Ph.D.; Associate Marine Scientist, MRRI; extensive molecular/population genetics experience
George R. Sedberry, Ph.D.; Associate Marine Scientist, MRRI; extensive fisheries research experience
John C. McGovern, Ph. D.; Assistant Marine Scientist; extensive fisheries research experience

Project Objective: To identify the stock structure of scamp, black and red grouper based upon genetic analysis of mitochondrial and nuclear DNA. To examine the genetic variation within and among populations of these species. To test the hypothesis that changing sex ratios in protogynous species results in changes in the genetic structure of populations.

Specific Priority(ies) in Solicitation to which Project Responds:

2. Reef Fish.

Subsection c. [4c] effect of reproduction mode on population size and Subsection c. (7) Fishing pressure on genetic structure of protogynous hermaphrodites

Summary of Work (For Continuing Projects, Include Progress to Date): Previous studies of red and black groupers indicate that disjunction distributions exist in several regions of their range. The extent to which these disjunctions influence the population structure of these species is not known, but they are important to understanding the effects of fishing pressure in one region on recruitment processes in another. In addition, these species are protogynous hermaphrodites and it has been suggested that fishing pressure preferentially removes males from the population. This would be translated into a reduction in effective breeding sizes of the populations and a reduction in genetic variation. Previous studies of genetic variation in gag in our lab suggest that such process may well be in operation. The proposed research will examine the genetic structure of scamp red and black grouper to determine if distribution gaps indicate distinct populations. We will also test the hypotheses that fishing pressure results in a diminished population size and reduces genetic variation.

	Year 1	Year 2	Year 3	Total
Project Funding:				
Federal Share	\$92,512	\$92,507	\$91,652	\$276,672
Applicant Share	\$11,288	\$11,323	\$11,287	\$33,898
Total	\$103,800	\$103,831	\$102,939	\$310,570

MARFIN PROJECT SUMMARY

Project Title: Stock Structure of Red Snapper in the Northern Gulf of Mexico: Is their Management as a Single Unit Stock Justified Based on Spatial and Temporal Patterns of Genetic Variation, Otolith Microchemistry, and Growth Rates?

Project Status/Duration: New _____ Cont. X Project Period: 36 Months

Name, Address, and Telephone Number of Applicant:

Louisiana State University
Coastal Fisheries Institute, CCEER
Baton Rouge, Louisiana 70803-7503
Voice: (504) 388-6283
e-mail: wilsonlsu@aol.com

Principal Investigators and Brief Statement of Qualifications:

Dr. Charles Wilson - 20 years experience with research on age, growth, and reproductive biology of numerous fish species.

Co-Principal Investigators: Dr. John Gold - 25 years experience in fish molecular genetics research with emphasis on population structure; and Dr. James Cowan - 15 years experience in fish life history studies including otolith microchemistry.

Project Objectives:

We have joined forces in this interdisciplinary, interstate effort to combine our scientific expertise in molecular biology (Gold), otolith microchemistry (Cowan), and red snapper life history (Wilson) to address critical questions regarding red snapper biology. The central goal of the project is to provide scientific information critical to the management and conservation of the red snapper resource in the Gulf of Mexico. The primary objective to which all three lines of investigation are focused is a rigorous assessment/determination of the population (stock) structure of Gulf red snapper.

Specific Priority(ies) in Solicitation to Which Project Responds:

Priority 1 - Bycatch: a.(2) status of fish stocks significantly impacted by shrimp trawl bycatch, Priority 2 - Reef Fish: a.(1)(a) basic biological data: a.(1)c. production-style aging program. a.(2)(a) and (b) reproductive studies: a.(4)(a) stock structure, b.(7) development of innovative methods of stock assessment: c. (3). characterization and evaluation of biological impacts.

Summary of Work to be performed:

For red snapper in the northern Gulf of Mexico we will determine: (i) population structure across the northern Gulf (ii) relative contribution(s) of regional nursery areas to offshore assemblages; (iii) long-term movement and mixing rates across the northern Gulf; (iv) the (genetic) effective population size of subregional groups; (v) patterns of genetic variation/diversity and (genetic) effective population size over decadal time to determine if stock size in the Gulf has decreased significantly over the last two-three decades; (vi) if bycatch in shrimp trawls off the Texas and Louisiana coasts represent a random sample of the population; (vii) nursery of origin of juveniles taken as bycatch; (viii) growth rates of populations from across the Gulf; and (ix) the reproductive biology.

Budget for Age, Growth, and Reproduction Subproject:

	Year 1	Year 2	Year 3	Total
Project Funding:				
Federal	\$114,734	\$138,484	\$143,133	\$396,351
Non-Federal	\$31,360	\$33,989	\$35,031	\$100,380
Total	\$146,094	\$172,473	\$178,164	\$496,731

MARFIN PROJECT SUMMARY

Project Title: Stock Structure of Red Snapper in the Northern Gulf of Mexico: Is their Management as a Single Unit Justified Based on Spatial and Temporal Patterns in Otolith Microchemistry?

Project Status/Duration: New _____ Cont. X Project Period: 36 Months

Name, Address, and Telephone Number of Applicant:

University of South Alabama
Department of Marine Sciences
LSCB Rm. 25
Mobile, AL 36688-0002
Phone (334) 460-7136 Fax (334) 460-7357
e-mail: jcowan@jaguarl.usouthal.edu

Principal Investigators and Brief Statement of Qualifications:

Principal Investigator: Dr. James H. Cowan, Jr.-15 years experience in fish life history studies including otolith microchemistry.

Co-Principal Investigator: Dr. John Gold 25 years experience in genetics research with emphasis on stock identification; and, Dr. Charles A. Wilson- 20 years experience with research on age, growth, and reproductive biology of numerous fish species.

Project Objectives:

We have joined forces in this interdisciplinary, interstate effort to combine scientific expertise in molecular biology (Gold), otolith microchemistry (Cowan) and red snapper life history (Wilson) to address critical questions regarding red snapper biology. The central goal of the project is to provide scientific information critical to the management and conservation of the red snapper resource in the Gulf of Mexico. The primary objective to which all three lines of investigation are focused is a rigorous assessment/determination of the population (stock) structure of Gulf red snapper.

Specific Priority(ies) in Solicitation to Which Project Responds:

Priority 1 - Bycatch: a. (2) concerning status and condition of fish stocks significantly impacted by shrimp trawl bycatch, with emphasis on red snapper. Priority 2 - Reef Fish: a.(1)(a) Collection of basic biological data: a.(1)c. provide production-style aging program. a.(2)(a) and (b) reproductive studies: a.(4)(a) stock structure, b.(7) development of innovative methods of stock assessment: c. (3).characterization and evaluation of biological impacts.

Summary of Work to be Performed:

For red snapper in the northern Gulf, we will determine: (i) population (stock) structure across the northern Gulf; (ii) relative contribution(s) of regional nursery areas to offshore reef assemblages; (iii) long-term movement and mixing rates across the northern Gulf; (iv) the (genetic) effective population size (N_e) of sub-regional groups; (v) patterns of genetic variation/diversity and (genetic) effective population size over decadal time scales to determine if stock size in the Gulf has decreased significantly over the last two-three decades; (vi) if bycatch in shrimp trawls off the Texas and Louisiana coasts represent a random sample from the subregion; (vii) nursery origin of juveniles taken as bycatch; (viii) growth rates of samples from different subregions in the northern Gulf; and, (ix) reproductive biology.

Budget for Otolith Microchemistry Subproject:

	Year 1	Year 2	Year3	Total
Project Funding:				
Federal	\$58,617	\$63,146	\$65,593	\$187,356
Non-Federal	\$23,135	\$13,945	\$15,292	\$52,372
Total	\$81,752	\$77,091	\$80,885	\$239,728

MARFIN PROJECT SUMMARY

Project Title: Stock Structure of Red Snapper in the Northern Gulf of Mexico: Is Their Management as a Single Unit Stock Justified Based on Spatial and Temporal Patterns of Genetic Variation, Otolith Microchemistry, and Growth Rates?

Project Status/Duration: New _____ Cont. X **Project Period:** 36 Months

Name, Address, and Telephone Number of Applicant:

Texas A&M Research Foundation
P.O. Box 3578
College Station, Texas 77843
Phone: (409) 845-8629

Principal Investigators and Brief Statement of Qualifications:

Principal Investigator: Dr. John Gold (voice: 409-847-8778; e-mail: goldfish@tamu.edu - 25 years experience in fish molecular genetics with emphasis on population structure

Co-Principal Investigators: Dr. Charles Wilson - 20 years experience with research on age, growth, and reproductive biology of numerous fish species; and Dr. James Cowan - 15 years experience in fish life history studies including otolith microchemistry.

Project Objectives:

We have joined forces in this interdisciplinary, interstate effort to combine our scientific expertise in molecular biology (Gold), otolith microchemistry (Cowan), and red snapper life history (Wilson) to address critical questions regarding red snapper biology. The central goal of the project is to provide scientific information critical to the management and conservation of the red snapper resource in the Gulf of Mexico. The primary objective to which all three lines of investigation are focused is a rigorous assessment/determination of the population (stock) structure of Gulf red snapper.

Specific Priority(ies) in Solicitation to Which Project Responds:

Priority 1 - Bycatch: a.(2) status of fish stocks significantly impacted by shrimp trawl bycatch,
Priority 2 - Reef Fish: a.(1)(a) basic biological data: a.(1)c. production-style aging program. a.(2)(a) and (b) reproductive studies: a.(4)(a) stock structure, b.(7) development of innovative methods of stock assessment: c. (3). characterization and evaluation of biological impacts.

Summary of Work to be Performed:

For red snapper in the northern Gulf, we will determine: (i) population (stock) structure across the northern Gulf; (ii) relative contribution(s) of regional nursery areas to offshore reef assemblages; (iii) long-term movement and mixing rates across the northern Gulf; (iv) the (genetic) effective population size N_e of subregional groups; (v) patterns of genetic variation/diversity and (genetic) effective population size over decadal time to determine if stock size in the Gulf has decreased significantly over the last two-three decades; (vi) if bycatch in shrimp trawls off the Texas and Louisiana coasts represent a random sample from the subregion; (vii) nursery origin of juveniles taken as bycatch; (viii) growth rates of samples from different subregions in the northern Gulf; and (ix) reproductive biology.

Budget for Genetics Subproject:

	<u>Year 1</u>	<u>Year 2</u>	<u>Year 3</u>	<u>Total</u>
Project Funding:				
Federal	\$122,159	\$138,476	\$143,899	\$404,534
Non-Federal	\$28,441	\$29,461	\$30,383	\$88,285
Total	\$150,600	\$167,937	\$174,282	\$492,819

MARFIN PROJECT SUMMARY

Project Title: Partitioning Release Mortality in the Undersized Red Snapper Bycatch: Comparison of Depth vs. Hooking

Project Status/Duration: New X Cont ____ Project Period: 24 Months

Name, Address, and Telephone Number of Applicant:

Karen M. Burns
Program Manager
Fisheries Biology Mote Marine Laboratory
1600 Ken Thompson Parkway
Sarasota, FL 34236
Telephone: (941) 388-4441; Fax: (941) 388-4242; e-mail: kburns@mote.org

Principal Investigator(s) and Brief Statement of Qualifications:

Karen M. Burns is the Principal Investigator of 8 (eight) successfully completed and 1 (one) recently awarded MARFIN project, as well as the Principal Investigator of MML's Reef Fish and Coastal Pelagic Tagging Program. She supervised a Master's thesis on red snapper survival in 1997.

Raymond R. Wilson, Jr., Ph.D., Associate Professor, Dept. of Bio Sciences, California State U., Long Beach. Principal Investigator on 3 (three) reef fish studies on survivorship of undersized red groupers, funded by S-K/MARFIN and NURP at Wilmington. Supervisor of 2 (two) Master's thesis on red groupers.

Project Objective: To provide data on red snapper discard mortality by depth and gear.

Specific Priority(ies) in Solicitation to which Project Responds:

(C) Management of reef fish.

1. Research in direct support of management, including catch and release mortalities
- (B) 2. Source and quantification of natural and human-induced mortalities, including release mortality estimates for charter boats, headboats, and private rec vessels esp. for red snapper and the grouper complex.
- (A) 4. Stock structure of reef fish
 - a. Movement and migration patterns of commercially and recreationally valuable reef fish species.

Summary of Work: (For continuing projects, include progress to date)

- I. Use hyperbaric chambers to simulate field conditions in the lab to investigate the effect of rapid pressure changes on red snapper physiology.
- II. Tag red snapper caught aboard charter boats, headboats and rec vessels using circle hooks and compare results with red snapper returns from J hook captured fish.
- II. Compare acute mortality of red snapper caught by J vs. circle hooks.

	Year 1	Year 2	Year 3	Total
Project Funding:				
Federal	\$60,000	\$56,871		\$116,871
Non-Federal	\$38,154	\$32,423		\$70,577
Total	\$98,154	\$89,294		\$187,448

MARFIN PROJECT SUMMARY

Project Title: Investigating Movement Patterns and Spawning Habitat of Red Hind Grouper in a Newly Established Marine Fishery Reserve in the US Virgin Islands.

Project Status/Duration: New XX Cont _____ **Project Period:** 24 Months

Name, Address, and Telephone Number of Applicant:

Richard S. Nemeth
Eastern Caribbean Center University of the Virgin Islands
St. Thomas, US Virgin Islands 00802
Phone: (340) 693-1389

Principal Investigator(s) and Brief Statement of Qualifications:

Richard S. Nemeth, Ph.D. - Strong background in fisheries science (BS, MS) and reef fish ecology (Ph.D.) Entire Ph.D. utilized diving research (NAUI dive master, 1500+ hours). Experience in fish tagging (sonic, Floy, coded wire, elastomer injection). P.I. has spent past 7 yrs conducting Caribbean reef fish population surveys and fish recruitment studies.

Project Objective: (1) Evaluate effectiveness of Red Hind Bank Marine Fishery Reserve by documenting location and size of grouper spawning aggregations & reef fish community structure.

(2) Investigate the source of groupers spawning in Red Hind Bank using tag/recapture and sonic tracking programs and produce an area utilization map of adults in USVI region.

Specific Priority(ies) in Solicitation to which Project Responds: Areas of special interest in REEF FISH section: C2 - Evaluation of Marine Reserves as fisheries management tool; A4a - Movement and migration patterns of commercially important fish, B6 - assess tag performance on groupers.

Summary of Work: (For continuing projects, include progress to date) The Red Hind Bank will soon be established as the first Marine Fishery Reserve in the US Virgin Islands. It is unique in that the site includes the only known red hind grouper spawning aggregation site. Establishment of a MFR offers the unique opportunity to assess and evaluate the effectiveness of MFR's as a management action by documenting the response of reef fish populations released from 20+ years of heavy fishing pressure. We propose to visually survey reef fish population structure & density of red hind grouper spawning aggregations over a two year period. An intensive tag/release/recapture program and sonic tracking of aggregating groupers will provide some of the first information on the source of groupers spawning at that site. Target tagging #15 will be 2500 fish tagged with external Floy tags and 10 sonic tagged and tracked individuals. We will assess tag performance over 1.5 years to enhance future estimate of vital population parameters. We will also produce area utilization maps for red hinds based on a synthesis of 2 year tag recovery program and sonic tracking data. These baseline data will provide fishery managers essential information on MFR's. These data will also complement NMFS' side-scan-sonar survey of the VI and PR shelf.

	Year 1	Year 2	Year 3	Total
Project Funding:				
Federal	\$90,000	\$51,423		\$141,423
Non-Federal	\$38,050	\$21,886		\$59,936
Total	\$128,050	\$73,309		\$201,359

NA87FF0434

MARFIN PROJECT SUMMARY

Project Title: Maintenance of Critical Fish Spawning Habitat: Reproduction of the Ivory Tree Coral, *Oculina Varicosa*

Project Status/Duration: New _____ Cont. X Project Period: 24 Months

Name, Address, and Telephone Number of Applicant:

Dr. Craig M. Young
Harbor Branch Oceanographic Institution
Phone: (561) 465-2400, X303

Principal Investigator(s) and Brief Statement of Qualifications:

Dr. C. M. Young, Senior Scientist, Harbor Branch Oceanographic Institution

Project Objective:

To investigate reproduction in shallow and deep water populations of *oculina varicosa*, with a view to enhancement of restoration efforts in the deep water populations.

Specific Priority(ies) in Solicitation to which Project Responds:

2.3.C

2.8.c(2)

Summary of Work: (For continuing projects, include progress to date)

To provide information needed for management of critical fish spawning habitats and feeding grounds in a Marine Fisheries Reserve. Processes influencing the maintenance and recruitment of the reef forming coral, *oculina varicosa* will be investigated. DNA sequencing of morphologically distinct deep-water and shallow-water forms will be compared to determine whether differences have a genetic basis. Monthly samples of shallow corals and quarterly samples of deep corals will be analyzed histologically to determine periodicity of reproduction, and biochemically to determine how internal cycling of nutrient reserves relates to fecundity and reproductive cycles. Embryos and larvae will be cultured in vitro for use in studies of larval dispersal potential and settlement choices, and will also be outplanted as juveniles to assess suitability of the different habitats for growth and survival of recruits. Environmental parameters (depth, salinity, temperature, current, light, nutrients, chlorophyll) will be monitored for incorporation into predictive models of larval dispersal and recruitment.

	Year 1	Year 2	Year 3	Total
Project Funding:				
Federal	\$32,931	\$35,465		\$68,396
Non-Federal	\$31,830	\$33,586		\$65,416
Total	\$64,761	\$69,051		\$133,812

NA97FF0041

MARFIN PROJECT SUMMARY

Project Title: Renewal of an observer program to monitor the directed commercial shark fishery in the Gulf of Mexico and South Atlantic

Project Status/Duration: New X Cont Project Period: 12 Months

Name, Address, and Telephone Number of Applicant:

George H. Burgess
University of Florida
Gainesville, FL 32611

Principal Investigator(s) and Brief Statement of Qualifications:

George H. Burgess: 25 years in marine biological research, ichthyology specialty including elasmobranchs

Project Objective:

To continue a cooperative shark resource data collection system to enhance the reliability of management strategies for the fishery of the Atlantic Ocean

Specific Priority(ies) in Solicitation to which Project Responds:

5. General - improved understanding and management of fishery data collection, management, analysis, and conservation

Summary of Work: (For continuing projects, include progress to date)

This program will re-establish and expand a cooperative shark resource data collection system designed to enhance the reliability of subsequent management strategies for the shark fishery of the Atlantic, providing accurate data on species composition and fishery effort as well as ground-truthing to mandatory logbooks. Objectives are: 1) renew and expand an established observer program aboard cooperating shark fishing vessels during two semi-annual fishing seasons in the South Atlantic (North Carolina and Atlantic Florida) and Gulf of Mexico (Gulf Florida and Louisiana); 2) provide baseline characterization data on the species composition, relative abundance, and size composition within species for the "large" and "small coastal" shark species groups by depth and season in each regional fishery; 3) increase the knowledge of the biology of the important species taken in the fishery; and 4) disseminate pertinent information about the program, as necessary and requested, to various management, scientific, and public interest groups.

	Year 1	Year 2	Year 3	Total
Project Funding:				
Federal	\$149,910			\$149,910
Non-Federal				
Total	\$149,910			\$149,910

NA87FF0427

MARFIN PROJECT SUMMARY

Project Title: Stock Structure in Dolphin, *Coryphaena hippurus*, in the Western Central Atlantic, as Determined by Molecular Genetics Techniques.

Project Status/Duration: New _____ Cont. X **Project Period:** 36 Months

Name, Address, and Telephone Number of Applicant:

Robert W. Chapman
Marine Resources Research Institute
P.O. Box 12559
Charleston, SC 29422-2559
Phone: (843) 762-5402; FAX (843) 762-5110

Principal Investigators and Brief Statement of Qualifications:

Robert W. Chapman, Ph.D.; Associate Marine Scientist, MRRI; extensive molecular/population genetics experience
George R. Sedberry, Ph.D.; Associate Marine Scientist, MRRI; extensive fisheries research experience
Hazel Oxenford, Ph.D.; Lecturer; University of the West Indies; extensive fisheries research experience
Brian Luckhurst, Ph.D.; Chief of Fisheries; Government of Bermuda; extensive fisheries research experience

Project Objective: To identify the stock structure of dolphin in the western central Atlantic upon genetic analysis of mitochondrial and nuclear DNA. To examine the genetic variation within and among populations of this species. To test the hypothesis that two distinct population or stocks exist within a region.

Specific Priority(ies) in Solicitation to which Project Responds:

3. Coastal Migratory Pelagic Fisheries.

Subsection b., Assessment and management models for coastal pelagics; and f., Information on populations of coastal pelagics concerning population size, age, and movement patterns.

Summary of Work (For Continuing Projects, Include Progress to Date): Previous studies of dolphin have suggested that two distinct stocks (a northern and southern) exist in the western central Atlantic. This hypothesis will be tested using advance molecular tools. DNA will be cloned from this species and used to identify variable microsatellite loci. Mitochondrial DNA will be analyzed by restriction endonuclease digestion of the ND-1 region. Sampling will include northern and southern aggregations in the WCA and Mediterranean and New Zealand locations. The latter locations will be used as outgroups to judge the similarities and differences found in the WCA.

	Year 1	Year 2	Year 3	Total
Project Funding:				
Federal Share	\$87,294	\$90,047	\$85,939	\$263,280
Applicant Share	\$11,287	\$11,286	\$11,287	\$33,861
Total	\$98,581	\$101,333	\$97,226	\$297,141

MARFIN PROJECT SUMMARY

Project Title: Cooperative Research on the Biology and Assessment of Nearshore and Estuarine Fishes Along the Southeast Coast of the U.S.: Part 1. Weakfish; Part 2. Southern Flounder; Part 3. Spotted Seatrout; Part 4. Striped Mullet

Project Status/Duration: New _____ Cont. X **Project Period:** 36 Months

Name, Address, and Telephone Number of Applicant:

Dr. Charles A. Wenner
South Carolina Dept. of Natural Resources
P. O. Box 12559
217 Fort Johnson Road
Charleston, SC 29412

Principal Investigator(s) and Brief Statement of Qualifications:

Dr. Charles A. Wenner, Ph.D. in Marine Science: 20 years of experience with coastal and estuarine fishes of the South Atlantic Bight: publications and research grants on various aspects of the fishes, their ecology, biology and population status in the region. Subcontractors from North Carolina, Georgia, and Florida all have experience with the species in the proposal and the fisheries for them in their states.

Project Objective: For weakfish: generate latitudinal, seasonal, gear-specific age-length keys from otolith sections; to generate age-length keys for the NMFS fall groundfish survey made between Cape Cod and Cape Hatteras; to forward all ageing data sets to appropriate members of the Weakfish Technical Committee of the ASMFC. For southern flounder: to compile all catch data (recreational and commercial), generate age-length keys, maturity schedules, fishery independent indices of abundance, to produce a catch-at-age matrix for subsequent VPA analysis, to produce a summarization of the biology, fishery, and assessment of this species for the ASMFC and South Atlantic states. For spotted seatrout: obtain age-specific reproductive parameters for incorporation into stock assessments using VPA, yield per recruit, SPR based on fecundity for North Carolina, South Carolina, and Georgia as well as the region. For striped mullet: determine age-growth, maturity schedules, movement from tagging studies and reproductive biology along the southeast coast. Assemble materials for a first assessment. This cooperative program has evolved from the red drum MARFIN project and, hopefully, will address fisheries issues for those taxa that are widely distributed along the coast. To solve problems associated with these species, data need to be collected throughout the species range. A cooperative effort which produces results that are greater than the sum of the individual parts (in the opinion of the PI) is the way of the future.

Specific Priority(ies) in Solicitation to which Project Responds: Item 6 in RFP dealing with groundfish and estuarine fishes in the Gulf and South Atlantic (see sections b & c) in section: the structure of the proposal is a coordinated effort of Fishery Biologists from all South Atlantic states to address data requirements for stock assessments as well as conduct the assessments; it involves both quantitative as well as natural historians and is directed at inter-jurisdictional management plans.

Summary of Work:

A cooperative effort will be conducted by states along the southeast coast of the U.S. to address issues of mutual importance for four species that are important to the recreational and commercial sector. These are: weakfish, southern flounder, spotted seatrout and striped mullet. All species will be aged by analysis of their sagittal otoliths. Gear specific, seasonal age-length keys will be developed from samples taken in the recreational and commercial fisheries. For weakfish, states along the southeast coast will provide ageing structure to SCDNR; samples of the commercial catch will be obtained from those states where weakfish are exploited commercially. These materials will be sent to SCDNR; North Carolina will age their own fishery dependent and fishery independent samples. Staff from SCDNR and NCDMF will assist USFWS in the ageing of fishes taken in gill net selectivity studies and hook and release mortality studies. These data will be provided as edited data sets to various members of the weakfish technical committee of the ASMFC as well as others, i.e., Dr. Doug Vaughan of NMFS-Beaufort who generates the catch at age matrix. Southern flounder will also be aged by otoliths along the South Atlantic coast. Catch data, ageing data, maturity schedules, growth, etc. will be determined. Also, the available tagging sets from North Carolina, South Carolina, and Georgia will be combined to examine movement throughout the region. The catch at age data will be subjected to VPA using various indices from state sponsored surveys as "tuning" data. This will be summarized as a NMFS SSRF in Fisheries (both the biology, tagging, and assessment). Age-specific reproductive parameters will be obtained from South Carolina spotted seatrout and used in an assessment of South Atlantic spotted seatrout. The assessment for the individual states as well as the region will be provided to the South Atlantic Board as well as the ASMFC. A fishery for striped mullet is rapidly growing in North Carolina. Little is known of this species in the southeast. Striped mullet will be aged from otolith sections, maturity schedules will be generated, movements between states will be examined from tagging studies, age distribution of the commercial catch will be obtained in North Carolina waters. Age-specific reproductive parameters will be obtained, and the basis for a first assessment of Atlantic coast striped mullet will be in place.

	Year 1	Year 2	Year 3	Total
Project Funding:				
Federal	\$300,000	\$372,754	\$374,362	\$1,047,116
Non-Federal	\$71,299	\$72,819	\$73,394	\$217,512
Total	\$371,299	\$445,573	\$447,756	\$1,264,628

MARFIN PROJECT SUMMARY

Project Title: An Integrated Economic Analysis of Alternative Bycatch, Commercial, and Recreational Policies for the Recovery of Gulf of Mexico Red Snapper.

Project Status/Duration: New _____ Cont. X Start: January 1, 1999 End: December 31, 2000

Name, Address, and Telephone Number of Applicant:

Dr. Richard T. Woodward
Dept. of Agricultural Economics
Texas A&M University
College Station, TX 77843-2124
Phone: (409) 845-5864; e-mail: r-woodward@tamu.edu

Principal Investigator(s) and Brief Statement of Qualifications:

Dr. Richard Woodward is an expert in the area of dynamic optimization and sustainability. He has conducted analysis on resource management issues including fisheries, forestry and global warming. Dr. Wade L. Griffin possesses a wealth of experience in fishery economics. He has completed twenty-three projects related to the Gulf of Mexico, some of which include real effort measurement, Texas closure, TED's, finfish bycatch, and recreation demand.

Project Objective: The primary goal of this project is to conduct an economic analysis of alternative policies aimed at increasing red snapper stock levels in the Gulf of Mexico. The new bycatch-reduction policies are fractional license, fractional gear, and the buy-back of shrimp licenses. These will be compared with traditional bycatch-reduction policies (BRD's and closures) and policies directed towards the red snapper fishery including variable commercial and recreational quotas, trip limits, limited entry in the commercial fishery and bag and size limitations in the recreational fishery. The specific objectives are: (1) Modify the General Bioeconomic Fisheries Simulation Model (GBFSM) to include fractional license and fractional gear policies in the shrimp fishery and variable quotas in the red snapper fishery. (2) Using GBFSM, estimate the present value of the net gains associated with alternative bycatch and red snapper fishery policies. (3) Based on GBFSM, develop a dynamic optimization model that incorporates a sustainability criterion. (4) Using the dynamic-sustainability model, identify the policy paths that would satisfy three alternative objectives: the minimization of the cost to achieve the goal of a 20% SPR by the year 2019; maximization of the present value (PV) of the fishery; and the optimal policy that satisfies an economic sustainability criterion. (5) Estimate the increase in red snapper stocks associated with alternative fixed and flexible bycatch and red snapper fishery policies. (6) Based on the results obtained, develop policy guidelines for setting the optimal levels of bycatch reduction and commercial and recreational fishing quotas.

Specific Priority(ies) in Solicitation to which Project Responds: This proposal responds to priorities 1f (1&2) that relate to the economic considerations of bycatch reduction. The proposal considers both the issues of optimal bycatch reduction 1f (1) and alternatives to gear and season/area restrictions 1f(2).

Summary of Work:

Year 1: Incorporate new bycatch reduction policies into GBFSM (Objective 1). Evaluate the relative economic merits of the alternative policies for the recovery of the red snapper stocks (Objective 2). Begin the development of a dynamic optimization model of the Gulf shrimp and red snapper fisheries (Objective 3).

Year 2: Complete the specification of the dynamic optimization model (Objective 3). Conduct optimality analysis to identify cost efficient policies that achieve the goal of an SPR of 20%, and policies that are consistent with economic sustainability (Objective 4) and incorporate those results into GBFSM. Develop policy guidelines (Objective 6) and write final report.

	Year 1	Year 2	Year 3	Total
Project Funding:				
Federal	\$40,000	\$48,589		\$88,589
Cost Sharing	\$27,546	\$26,147		\$53,693
Total	\$67,546	\$74,736		\$142,282

MARFIN PROJECT SUMMARY

Project Title: An Assessment of the Recreation Demand for Gulf of Mexico Red Snapper

Project Status/Duration: New _____ Cont. X **Start:** January 1, 1999 **End:** December 31, 2000

Name, Address, and Telephone Number of Applicant:

Dr. Teofilo Ozuna, Jr.
Dept. of Agricultural Economics
Texas A&M University
College Station, TX 77843-2124
Phone: (409) 845-2335

Principal Investigator(s) and Brief Statement of Qualifications:

Dr. Teofilo Ozuna, Jr., is an expert in the area of recreation demand analysis and has published widely in this same area. He has worked on 5 projects related to the Gulf of Mexico, some of which include coastal recreational tourism impacts, collection of costs and returns data, coastal fishing benefit estimation, and estimation of recreation demand for saltwater fishing. Dr. Wade L. Griffin possesses a wealth of experience in fishery economics. He has completed twenty-three projects related to the Gulf of Mexico, some of which include real effort measurement, Texas closure, TED's, finfish bycatch, and recreation demand.

Project Objective: The primary goal of this project is to assess whether red snapper regulations, charter and private/rental boat use, and targeting single versus aggregate species have an impact on the recreation demand for red snapper and its economic value. To accomplish this goal, state-of-the-art recreation demand methodology and data from the supplemental Southeast MRFSS economic survey available in mid-1998 will be employed. Specific objectives of the study are: (1) to obtain the 1998 Southeast MRFSS survey data, examine these data using descriptive statistics, and process the data so that it is manageable for the estimation of recreation demand functions; (2) to assess whether red snapper or substitute recreation species regulations have any effect on the recreation demand for red snapper and its value; (3) to determine whether charter boat recreation demand and its value is statistically different from the private/rental boat recreation demand and its value; and (4) to ascertain if the recreation demand for red snapper and its value is statistically different from the recreation demand for an aggregate of related recreation species and their overall value.

Specific Priority(ies) in Solicitation to which Project Responds: This proposal responds to priority 5 topic g, which relates to the need for the estimation of recreation demand functions.

Summary of Work:

Year 1: The first three months will be used to obtain the data, prepare (sort, classify, arrange, etc.) the data for estimation, and review the recreation demand literature (Objective 1). An assessment of whether red snapper or substitute recreation species regulations have an effect on the recreation demand for red snapper and its value will be undertaken during the following seven months (Objective 2). The analysis of the determination of whether charter boat recreation demand and its value is statistically different from the private/rental boat recreation demand and its value will begin during the last two months of year 1 (Objective 3).

Year 2: The first five months will be used to complete objective 3 which was begun during the last two months of year 1. During the next six months, we will ascertain if the recreation demand for red snapper and its value is statistically different from the recreation demand for an aggregate of related recreation species and their overall value (Objective 4). The final month will be used to consolidate the articles that were written during the execution of objectives 2, 3, and 4 into a final report that will be delivered to MARFIN.

	Year 1	Year 2	Year 3	Total
Project Funding:				
Federal	\$48,193	\$49,334		\$97,526
Cost Sharing	\$26,853	\$27,617		\$54,470
Total	\$75,046	\$76,951		\$151,996

NA87FF0433

MARFIN PROJECT SUMMARY

Project Title: Defining and Identifying Fishing Dependent Communities: Development and Confirmation of a Protocol

Project Status/Duration: New _____ Cont. X **Project Period:** 24 Months

Name, Address, and Telephone Number of Applicant:

University of Florida
AFAS, G040 McCarty Hall
P.O. Box 110110
Gainesville, FL 32611

Principal Investigator(s) and Brief Statement of Qualifications:

Steve Jacob, Ph.D., Rural Sociology, areas of specialization: Communities and Evaluation
Suzanna D. Smith, Ph.D., Sociology, area of specialization: Family Science and Qualitative Data Collection
Charles M. Adams, Ph.D., Food Resource Economics, area of specialization: Marine Economics
David Mulkey, Ph.D., Agricultural Economics, area of specialization: Regional Economics

Project Objective:

- 1) To define and identify fishing dependent communities
- 2) To empirically evaluate the definition of fishing dependent communities and the identifying protocol

Specific Priority(ies) in Solicitation to which Project Responds:

General priority

Summary of Work: (For continuing projects, include progress to date)

Year One

- 1) Develop a definition of fishing dependent communities
- 2) Develop a protocol for identifying communities empirically

Year Two

- 1) To identify differing communities for in-depth case study work
- 2) To evaluate the definition and protocol through in-depth case study
- 3) To collect demographic information on fishing dependent families and for those involved in fishing related business
- 4) To modify and refine the definitional protocol on the basis of the research

	Year 1	Year 2	Year 3	Total
Project Funding:				
Federal	\$70,625	\$149,425		\$220,050
Non-Federal	\$33,517	\$50,660		\$84,177
Total	\$104,142	\$200,085		\$304,227